REPORT RESUMES

ED 003 870 48
A BINI GRAMMAR, PART 1--PHONOLOGY.
BY- WESCOTT, ROGER W.
MICHIGAN ST. UNIV., EAST LANSING,AFRICAN STUD.CTR.
REPORT NUMBER NDEA-VI-164-1 PUB DATE 62
EDRS PRICE MF-$0.27 HC-$5.16 129P.

DESCRIPTORS- *BINI, *LANGUAGES, *LANGUAGE INSTRUCTION, *GRAMMAR, CULTURAL BACKGROUND, STRUCTURAL ANALYSIS, *PHONOLOGY, EAST LANSING, MICHIGAN, NIGERIA

A PHONOLOGY OF BINI GRAMMAR (A LANGUAGE OF WESTERN NIGERIA) HAS BEEN DESIGNED FOR A HIGHLY HETEROGENEOUS AUDIENCE. THE VOLUME IS AIMED AT (1) AREA SPECIALISTS INTERESTED IN LANGUAGE OR CULTURE STUDIES OF AFRICA, (2) ETHNOGRAPHERS FOCUSING ON THE SOCIAL STRUCTURE OF THE EDO-SPEAKING PEOPLES, (3) HISTORIANS WORKING ON THE BENIN PROJECT OF IBADAN UNIVERSITY, (4) LINGUISTS CONCERNED WITH ANALYTICAL PROCEDURES, (5) MISSIONARIES IN THE BENIN AREA, AND (6) BINI-SPEAKING TEACHERS AND WRITERS WHO SEEK A MORE EXACT UNDERSTANDING OF THEIR LANGUAGE. IN THE CHAPTERS FOLLOWING THE INTRODUCTION, THE AUTHOR DESCRIBES THE ELEMENTS OF BINI, BEGINNING WITH SOUNDS AND MOVING THROUGH FORMS TO SENTENCES, CONCLUDING WITH A BRIEF DISCUSSION OF DISCOURSE TYPES AND THEIR RELATION TO BINI CULTURE. A MORPHOLOGY OF BINI GRAMMAR WAS ASSIGNED ACCESSION NUMBER ED 003 871, AND LEXEMICS, ED 003 872. (JC)

ED003870

164-1

A BINI GRAMMAR

Part 1: Phonology

by ROGER W. WESCOTT

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

A BINI GRAMMAR, PART 1-- PHONOLOGY

Part 1: Phonology

by Roger W. Wescott
African Language and Area Center
Michigan State University

1962

Dedication

To Dr. ROY ABRAHAM

Devoted student of African languages

Whose productive industry I have
long admired, if seldom emulated

FOREWORD

The 120 mimeographed pages contained in this soft-cover edition have been prepared for the United States Office of Education and cover Bini phonology only. They represent the second draft of a longer work, entitled "A Bini Grammar", which, in its third and final draft, is expected to appear in full during the coming academic year -- though whether in a series of journal installments, in two soft-cover volumes, or in a single hard-cover volume remains uncertain.

With the permission of the Office of Education, this mimeographed edition will be distributed during the month of April to the informants and colleagues named in the Acknowledgements section, who, it is hoped, will check it for errors or omissions and so help pave the way for the appearance in print of the final draft in the autumn of 1962.

Roger W. Wescott

African Language and Area Center
Michigan State University
East Lansing, Michigan, U.S.A.

31 March 1962

ACKNOWLEDGMENTS

I should like to acknowledge the financial assistance of the Ford Foundation of New York, from whom I held a Fellowship in Ethnohistory in Western Nigeria in 1955-56; of Michigan State University, East Lansing, Michigan, from I held an All-University Research Grant in Ethnolinguistics from 1958 to 1961; and of the United States Bureau of Education, whose matching-funds grant to Michigan State University under the National Defense Education Act has enabled me to continue my study of African languages.

I should like also to acknowledge the professional assistance of the late Mr. John Uldall of University College, Ibadan, Nigeria, whom I consulted on problems in the phonetics of Bini; and of M. Louis Houis of the Institut Français de l'Afrique Noire at Dakar, Senegal, who helped me with the analysis of Bini tone.

In addition, I am indebted for frequent personal advice and encouragement from Dr. Robert Armstrong, Field Director of the West African Linguistic Survey's Nigerian Headquarters at the Nigerian Institute of Social and Economic Research in Ibadan; from Professor Jack Berry, Director of the West African Language Program at London University's School of Oriental and African Studies; from Professor Joseph Greenberg, General Director of the West African Linguistic Survey's American Headquarters at Columbia University in New York; from Professor William Welmers of the University of California at Los Angeles, Chief Advisor on African Languages to the United States Department of Health, Education, and Welfare; and from Dr. Hans Wolff of Michigan State University, formerExpert on Nigerian Orthographies for the United Nations' Educational, Scientific and Cultural Organization, now my colleague in the Michigan State University African Language Program.

My greatest debt, however, is to those of my Nigerian linguistic informants to a study of whose native language this volume is dedicated. I only hope they may find the results as useful as I found their assistance. These contributors to the advancement of Bini language-studies are, in the chronological order in which they worked with me: Mr. Samuel Atalobo of University College, Ibadan; Mr. William Okunmwendia of Benin; Mr. Alfred Uwadiae of Benin; Mrs. Itohan Rotimi of Benin; Chief Jacob Egharevba, Curator of the Benin Museum; the Reverend Osadolor Imasogie, Pastor of the American Baptist Church in Benin; Mr. Albert Imohiosen of Cornell University, Ithaca, New York; Mr. Augustine Oyairo of the Ontario Veterinary College in Guelph, Ontario, Canada; Mr. Solomon Akpata of Michigan State University, East Lansing, Michigan; and his cousin Mr. Michael Akpata of the University of Alberta, Edmonton, Alberta, Canada.

Among these, Chief Egharevba requires special mention, not only for enriching my appreciation of Benin's antiquities, but for serving as the sole direct link with my predecessor in Bini linguistic studies, Dr. Hans Melzian of Berlin, with whom he also worked as an informant. The Reverend

Mr. Imasogie gave unstintingly of his time and interest, provided me with a fund of traditional oral literature, and declined any material compensation for his long labor. Finally, Mr. Imohiosen, though initially engaged solely as an informant, soon showed such aptitude for linguistic analysis that he became a doctoral candidate in anthropology at Cornell University and a part-time staff-member of the African Language Program at Michigan State University.

To all of the above persons and institutions I am grateful for their assistance and their patience.

Finally, I must mention my very special debt to Dr. Hans Melzian's Bini Dictionary of 1937, whose clarity and completeness have been immeasurably helpful to me. As often as I react against Melzian's "phoneticism" and his proneness to mix levels of linguistic analysis, I am always aware of the fact that any advantage in analytic perspective I may enjoy is partly due to the fact that I am standing on his scholarly shoulders.

Before closing, I ought also to acknowledge the generosity of the London School of African Studies in making available to me the undated typescript grammar of Bini which Melzian produced during the War but was prevented, by his untimely death in 1945, from either editing or revising. Strangely, however, I have made almost no use of this work, which I find to be, at best, suggestive rather than systematic. Curiously, in fact, it reads as though its author were unfamiliar with the Melzian Dictionary! -- or, at any rate, as though the Dictionary had not been available at the time when the grammar was being drafted. The only plausible explanation of this peculiar lacuna that I can conceive of is that it is in some way connected with the pressures and deprivations of the War itself. Yet the typescript grammar does have one salient merit, and that is the fine collection of tone-marked Bini folk-tales which constitute its appendix.

Roger W. Wescott

East Lansing, Michigan

August 21, 1961

TABLE OF CONTENTS

Preface . . . . page i-iii

Chapter 1: Background . . . . page 1

Chapter 2: Pronunciation. . . . . page 8

- Section 1: Orthography. . . . . page 8
- Section 2: Allophones . . . . page 18
- Section 3: Stress . . . . page 30
- Section 4: Syllables. . . . . page 33
- Section 5: Nasality . . . . page 38
- Section 6: Segmental Phonemes . . . . page 41
- Section 7: Prosodic Phonemes. . . . . page 51
- Section 8: Tempo. . . . . page 60
- Section 9: Phonotactics . . . . page 70
- Section 10:Sporadic Variation . . . . page 83
- Section 11:Phonic Domains . . . . page 99
- Section 12:Metaphonemes . . . . page 109
- Section 13:Metaphonemics. . . . . page 115

Tables:

- Table 1: Six Bini Orthographies . . . . page 17
- Table 2: Non-Syllabic Allophones in Bini. . . page 20
- Table 3: Syllabic Allophones in Bini. . . . . page 24
- Table 4: Vowel-Sequence Types . . . . page 28
- Table 5: Vowel-Sequence Types . . . . page 29
- Table 6: Degrees of Vowel Nasality. . . . . . page 40

Table 7: Speech-Tempos. . . . . page 61

Table 8: Temporal Toneme Changes. . . . . . page 65

Table 9: Tempo and Tone-Level . . . . page 66

Table 10: Phonemic Stability in Euphonic Utterances. . . . . page 69

Table 11: Phonic Domains . . . . page 100

PREFACE

This grammar is designed for a highly heterogeneous audience, composed primarily of the following groups: (1) area specialists interested in language- or culture-studies of all parts of tropical Africa; (2) ethnographers focussing on the social structure of the Edo-speaking peoples; (3) historians working directly or indirectly on the Benin Project sponsored by Ibadan University; (4) linguists more concerned with analytical procedures than with specific languages or language-groups; (5) missionaries in the Benin area who wish to reach their parishioners more immediately than they can in English; and (6) Bini-speaking teachers and writers who seek a more exact understanding of their own language than conventional training in English grammar offers them. As though this assemblage were not already diverse enough, the grammar is intended secondarily for any and all foreign visitors to Benin Province who may find a description of one of the Edo languages useful or interesting. The author's hope is that this volume may have something to offer to each of the abovementioned audiences, though he fully appreciates the very real possibility that it may fall between scholarly stools in such a way as to leave all of its prospective audiences unsatisfied. But this is a risk run by any practitioner of Zwischenkunst.

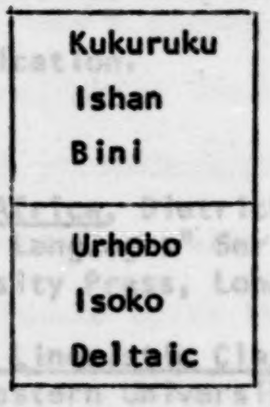
In keeping with the diversity of its objectives, this grammar has had a chequered history. In a sense, it is not one grammar, but three, each one partially encapsulated in its successor: It began, during a year's anthropological field-trip to Western Nigeria in 1955, as an essentially "pre-structural" work, Jonesian in its phonology and Neogrammatical in its syntax. In 1956, Dr. Berthe Siertsema, then Lecturer in Phonetics at Ibadan, introduced the writer to Eugene Nida's Morphology, whereupon he began to recast his Bini grammar in structural terms. This process culminated in 1957 with his formulating an analysis of Bini which was, in effect, an application to an Edo language of the format applied by Dr. Welmers to an Akan language in his Descriptive Grammar of Fanti of 1946. However, since Bini informants are scarce in the New World and free time for research little less so, he was unable to complete this analysis until the summer of 1959. Reviewing his materials at this time, he decided that puristic structuralism might prove as much of a strait-jacket to his own thinking as uncritical traditionalism had previously, and so he somewhat hesitantly embarked on a third version of the grammar, which constitutes the bulk of this volume. Its merit from his own point of view is that it is more flexible than its predecessors and less coercive of the data, yet not, he trusts, so neologistic as to be incomprehensible in terms of traditional terms and concepts. In this regard its general model has been Professor James Sledd's Short Introduction to English Grammar of 1959, which is widely conceded, in its field, to be one of the most successful recent attempts to mediate between structuralism and traditionalism. If his work comes close to doing for Bini what Sledd has here done for English, the writer will be well pleased.

His policy on terminology has generally been to avoid technical language where such language seemed unnecessary but to use as much as seemed appropriate to the subject-matter, even coining terms when coinages appeared to emerge from the functional categories of the language itself rather than from some earlier work. Thus, for example, the reader will here encounter "phonemes" but not "tagmemes", since the writer feels that the indispensability of the former concept has been demonstrated in practice, while that of the latter has [illegible] -- at least not yet. On the other hand, Bini compounds will here be divided into "autothetic", "allothetic", and "heterothetic" types, but only because the more familiar terms devised for compound-classes in English, Latin, or Sanskrit do not seem to fit the Bini material. And the reader will undoubtedly be relieved to learn that Bini-speakers, like themselves, use vowels and consonants and speak in words and sentences. Finally, when unfamiliar terms do not seem to be sufficiently well defined or illustrated in the expository sections, explicit definitions of them may be found in the glossary which follows the Bini texts.

Chapter 1: BACKGROUND

Bini is the native language of slightly over 200,000 people occupying the greater part of the Benin Division of Benin Province in the Western Region of Nigeria in West Africa. Of this number, about a quarter live in the capital, Benin City; another quarter in such towns as Usen, Udo, Uselu, Ughoton, Ugo, and Urhonigbe; and the remainder in scattered farm villages. The Bini name for themselves, their capital, their kingdom, and their language is Ẹ̀dó. The word "Bini" (more precisely Ùbînî), of which "Beni", "Binin", and "Benin" are Anglicized variants, is said to be a contemptuous nickname of Yoruba origin, given to the Edo by one of the first Obas who reluctantly left Ife to live among them and establish a royal dynasty.

Besides Bini itself, the Edo Language Group includes at least five other languages: Kukuruku, Ishan, Urhobo, Isoko, and "Deltaic" or "Delta Edo", which itself can be subdivided into such dialects as Yenagoa, Degema, and Engenni, all of them sufficiently divergent as perhaps to merit the title of languages in themselves. Bini and its sister tongues may be represented schematically, and in crudely geographic fashion, as follows:



Of these six languages, the first three should, according to Dr. Hans Wolff[1]

---

[1] Personal communication

(with whose view the author concurs), be sub-grouped together as "Northern Edo", while the last three are similarly sub-grouped and termed "Southern Edo".

If we put the Edo Group into its linguistic and geographic setting in an analogously schematic fashion, our map-diagram will look roughly like this:

Yoruba	Igbira	Igala
	Edo	Ibo
Jekri	Ijaw	

Along with all the other languages in the above diagram, Edo was held by Westermann[2] to belong to the Eastern Sub-branch of the Kwa Branch of a family which he called West Sudanic and which Greenberg has since combined with Bantu and related languages into a still larger Niger-Congo Family.[3] In Greenberg's system (which the author accepts, at least pro tem), Ijaw does belong in the Niger-Congo Family but constitutes a separate Ijaw Branch quite distinct from Kwa. Although recent glottochronological researches[4] have cast serious doubt on both the autonomy and the unity of the Kwa Branch, "Kwa" will probably have to be retained as a taxonomic category until it has been indisputably replaced by a more precisely empirical classification.

---

[2] Languages of West Africa, Dietrich Westermann and M.A. Bryan, in the "Handbook of African Languages" Series of the International African Institute, Oxford University Press, London, 1952.

[3] Studies in African Linguistic Classification, Joseph H. Greenberg, reprinted for the Northwestern University African Studies Program by the Compass Publishing Company, New Haven, 1955.

[4] By Dr. Henry Gleason, Professor William Welmers, Miss Kay Williamson, and the author.

Returning for a moment to our first diagram, it is probable that most Ishan-speakers and many Kukuruku-speakers can understand Bini without special training or prolonged preparatory exposure. In addition, many of those speakers of the languages listed in the second diagram whose forebears lived under the political or cultural suzerainty of the Benin Kingdom still claim Bini as a second language. Taking both these factors into consideration, it seems a reasonable supposition that somewhat over a million West Nigerians understand, if they do not actually speak, Bini.

As we have seen, Bini, within the Eastern Kwa Sub-branch, is geographically intermediate to Yoruba and Ibo. Typologically and lexically, however, Bini is closer to Yoruba than to Ibo. In the realm of phonology, Bini agrees with Yoruba rather than with Ibo on three out of four criteria: vowel-patterning, the system of general phonemic opposition, total phoneme inventory, and specific phoneme-by-phoneme correspondence (whether phonetically or metaphonemically calculated). Thus, Bini and Yoruba have 7-vowel patterns without harmonic requirements, while Ibo has an 8-vowel pattern (or, metaphonemically, a 4-vowel pattern) with obligatory vowel harmony; Bini and Yoruba have a system of predominantly binary (front-back) phonemic oppositions, while Ibo has a system of predominantly trinary (front-central-back) phonemic oppositions; Bini has, by the author's count, 37 phonemes, as contrasted with Ibo's comparable 38 and Yoruba's scanty 28; but Bini and Yoruba agree in negative sharing (i.e., non-possession) of the seven Ibo phonemes θ, ny, nw, ŋ, gw, kw, and c, while Bini and Ibo agree in the positive sharing of only three non-Yoruba phonemes -- gh, v, and z.

Lexicostatistically, above and beyond the much larger proportion of technical Yoruba loan-words in Bini than of corresponding Ibo loan-words, Bini is closer to Yoruba than to Ibo on two out of three glottochronological test-lists, and intermediate on the third.[5] (In this connection, it is interesting to note that, in relation to languages of the so-called Western Kwa Sub-branch, Bini is lexicostatistically closer to Twi, the demographically and politically preponderant language of the Eastern Kwa Sub-branch, than it is to such geographically closer Western Kwa languages as Gan, Adangme, and Ewe.)[6]

Within Benin Division itself -- that is, the linguistic area of Bini considered as a first language rather than as a lingua franca -- regional dialect variation is surprisingly slight.[7] This vernacular homogeneity can probably be attributed to the extraordinary cultural centralization of the Bini polity during its Imperial Period, c. 1400-1700 A.D.[8]

Inside Benin City, however, dialectical diversity is considerable, though it is social rather than geographic in nature. Urban Bini may be divided into a number of age-, sex-, and class-dialects, which may in turn be sub-divided into idiolects, or personal dialects. Most of these can best be illustrated in the specific discussions of pronunciation and usage in ensuing chapters.

---

[5] Closer to Yoruba on the Swadesh 100-word list and the Swadesh-Wescott 10-word list; intermediate to Yoruba and Ibo on the Wescott 10-word list.

[6] On the Wescott 10-word list.

[7] *A Bini Dictionary*, Hans J. Melzian, Kegan Paul Ltd., London, 1937, "Introductory Remarks", p. vii.

[8] *The Benin Kingdom*, R.E. Bradbury, in the "Ethnographic Survey of Africa" Series Part XIII, International African Institute, London, 1957, pp. 20-21.

Yet mention should be made of the fact that many speakers, native as well as foreign-born and urban as well as rural, are amusedly held by other speakers to sound "Yoruba" or "Ishan" in their speech. Sources of Yoruba influence on Bini are, of course, many: There is a large Yoruba trading-colony in Benin City. The Binicized Yoruba town of Akure is not far from Benin on the Ibadan Road. Many young Bini are now educated in Lagos or Ibadan. And several of the chiefly families, as well as the royal family itself, claim descent from Yoruba aristocracy.

"Ishan" influence is harder to understand. However, some clue to the meaning of this term may be gleaned from the fact that the author, though complimented on the fact that his Bini did not sound "European", was told that he did "talk like an Ishan". In literal terms, this seemed most improbable, as he had spent only a few weeks in Ishan country, in contrast to the several months he passed in Benin City. But the most salient feature of Ishan, at least from the standpoint of the comparative linguist, is that it retains unchanged many of the forms, especially the affixes, of a hypothetically reconstructable proto-North Edo -- affixes which in colloquial Bini are lost or slurred. Since the writer, predictably enough, spoke slowly and tended to give full value even to the commonest affixes, his speech had an archaistic quality which native speakers, particularly young adults, heard as "Ishan". Moreover, those young men whose Western education has brought them under British or Yoruba influence tend to characterize any sort of ceremonious, old-fashioned, or rural speech as "Ishan" -- which, at best, connotes "rustic" and, at worst, "barbarous".

Most English-speakers, finding Bini, like other Kwa languages, difficult to learn, assume that Bini and English are as distant from one another typologically as they are genealogically. But this is true only of the sound-system, characterized as it is by "clear" vowels and lexical tone. Formally, Bini and English have much in common, both being inflectional languages in the process of losing the rich affix-systems that typify their Bantu or Latin cousin-tongues, and evolving toward the analytic, isolative character of Chinese, which has reduced its words to virtual identity with its bases and which indicates grammatical relationships by word-order rather than by word-shape.

In this evolutionary (or devolutionary) process, Bini is somewhat further advanced than English, since English still inflects four "parts of speech", while Bini inflects only three. In Melzian's view, however, a much bigger difference between the two languages is the fact that Bini is "verb-centered", while English, if not wholly "noun-centered", is at least far more nominal in its emphasis than is Bini.[9]

But the present writer questions Melzian's contention on this point. The nouns which Melzian saw as derived from verbal stems he sees rather as derived from "neutral" roots which can take either nominal or verbal form. In fact, many Bini utterances are homophonic pairs which may be interpreted either as nominal words or as verbal phrases.[10] Thus, for example, ùwú can mean either "you die" or "death"; ìyáyì can mean either "I believe" or "faith" (compare Latin-English credo); and àfànbhẹ́n can mean either "I'm being saved" or "my savior". In some cases this sort of fruitful ambiguity is deliberately exploited for rhetorical purposes, as in the sentence (made emphatic by its inverted word-order) ọ̀tá ọ̀tá, which literally states "talk he talks" but which means, in effect, "He talks nothing but hot air!"

---

[9] "A Grammar of Bini", Hans J. Melzian, typescript, no date, pp. 96-99.

[10] Bini verbal forms are not here called "phrases" because they can be most conveniently translated by English phrases, but rather because Bini verbs, unlike Bini nouns, lack lexical tone and become pronounceable utterances only when endowed with phrase superfixes. (See below, .)

In the chapters which follow, we shall describe the elements of Bini, beginning with sounds and moving through forms to sentences, concluding with a brief discussion of discourse-types and their relation to Bini culture.

Chapter 2: PRONUNCIATION

Section 1: Orthography

Since this Grammar has not been tape-recorded, its representation of Bini sounds must of necessity be graphic; and this brings us to the problem of orthographies.

To the best of the author's knowledge, no fewer than ten different orthographies have been used for Bini. These are, in rough order of their chronological appearance in printed or multigraphed form: the Standard Orthography, adapted around the turn of the century from Bishop Crowther's Church Mission Society Yoruba Orthography; the Catholic Mission Society Format, which differs only minimally from the Standard; Melzian's slightly conventionalized adaptation of the above Alphabet in his booklet *Vergleichende Charakteristik des Verbums im Bini* of 1942;[1] Wolff's typescript "Recommendations on Bini Orthography" of 1953; the revised transcription of the above which appeared in his article "Subsystem Typologies and Area Linguistics" of 1959;[2] Bradbury's simplification, in 1957, of Melzian's Dictionary orthography of 1937;[3] the author's adaptation of the two Church

---

[1] Institut fuer Lautforschung an der Universitaet Berlin, in Kommission bei Otto Harrassowitz, Leipzig.

[2] In *Anthropological Linguistics*, a Publication of the Archives of Languages of the World, Bloomington, Indiana.

[3] In *The Benin Kingdom*, International African Institute, London.

Orthographies in 1956;[4] the author's adaptation of Melzian's Dictionary orthography in the article "Metalinguistics of Bini" in 1960;[5] and finally the revision of the author's 1956 orthography which is used in this Grammar.

The Catholic orthography represents a slight advance over the Standard Orthography, in that it gives separate representation to the retroflex lingual in such words as érlórló, "tinkling bell", which for many speakers is phonemically distinct from the ordinary apical tap represented as r in all ten orthographies.

Melzian's Dictionary orthography has the merit of using fewer digraphs than the Standard; but it unfortunately employs even more allophonic symbols than the Standard does.

Wolff's orthographies of 1953-59 were unquestionably the best phonemic transcriptions available till then. The only respect in which the earlier of them represented a phonemic retrogression was in its failure to retain the retroflex vs. non-retroflex lingual distinction introduced by the Catholic Orthography. Yielding to friendly pressure from the author in 1956, Dr. Wolff did re-introduce the retroflex phoneme in his Typologies article of 1959, using the rl digraph recommended in the author's Problems article of 1957.

Bradbury's orthography differs from Melzian's Dictionary orthography only in those regards in which Wolff had already corrected Melzian -- e.g., in reducing the number of allophonic symbols used. But in the one case where Melzian's orthography was phonemically more complete than Wolff's -- viz., in regard to the retroflex lingual -- Bradbury unfortunately abandoned the Melzian distinction.

---

[4] Published as an article, "Problems in Linguistic Anthropology", in the *Proceedings of the West African Institute for Social and Economic Research*, Ibadan, 1957.

[5] In *Anthropological Linguistics*, as above.

The transcription used in most sections of this Grammar represents an attempt to retain the conventions of the Standard Orthography except in those cases where the Standard is patently non-phonemic, plethoric, or defective. Thus, for example, we here follow Wolff's earlier orthography in writing *bh* for both Standard *vb* and Standard *mw*. The justification for this is the fact that *mw* is a conditioned or positional allophone of *vb*, occurring exclusively but invariably before nasalized vowels. The reason for writing *bh* instead of *vb* is that it is more consistent with the rest of the orthography, since phonetically *vb* is to *b* as *gh* is to *g*.

On the other hand, the kind of phoneme-splitting that occurs in such words as the verb "to open", which Standard indifferently represents as *yan*, *nyan*, or *nya*, indicates the occurrence of free, or non-positional, variation. In such cases, we shall hereafter write *yan* and only *yan*, since *y* rather than *n* is the initial consonant whose allophone is being represented by *ny*. The same, of course holds for allograms like *wọn*/ *nwọn*/ *nwọ*, "to drink", which we shall hereafter write only as *wọn*.

Vowel-length, so far as the author can tell, is not indicated by Wolff or Bradbury. By Melzian and the Church orthographies it is capriciously indicated, a word like the verb "to supplicate" being more or less indifferently represented by *hian*, *hiaan*, and *hiaaan*. In this Grammar we shall correlate vowel-length representation primarily with speech-tempo, writing the above verb, for example, as *hiaaan* when it occurs in final position in slow speech, hiaan when it occurs finally in ordinary speech, and hian when it occurs before a pronoun in rapid speech.

The fact that the above verb, in ceremonious speech, occurs as hia'an, where the apostrophe represents a speech-gap resultant from the loss of an intervocalic phoneme, leads us to consider the question of punctuation generally. Wolff and Bradbury, so far as the author knows, did not use punctuation at all in their orthographies, since neither presented any continuous texts. The Church orthographies generally treat Bini as though it were English, leaving spaces where Standard English orthography does -- as, for example, in i he, "I refuse" -- despite the fact that there is no speech-gap between the two morphemes in this Bini utterance and that i- is a prefix rather than a word. The texts in Melzian's unpublished grammar tend also to use spaces morphemically rather than phonemically, but they at least avoid the Churchly propensity to use question marks and exclamation points as signs of rising and falling intonation -- an especially unfortunate device in representing languages where doubt and surprise are expressed, for the most part, grammatically rather than phonically.

Here we shall normally employ spaces and punctuation marks in an exclusively phonemic fashion, spaces representing gaps in speech, commas representing pauses, and periods representing stops. Question marks and exclamation points will not be used, because they correspond to nothing audible in Bini.

The same policy will here be followed in regard to capitalization. Since in Bini (as, for that matter, in English) proper names sound no different from common nouns, they will not here be differently represented.

Precisely the opposite situation obtains, however, with regard to tonality. Although tone plays a far more essential role in Bini than in English, the Church orthographies fail to represent even those tones needed to prevent lexical ambiguity. In English, as we saw above, grammatical ambiguities are partially obviated by the use of quasi-phonemic punctuation signs. But many of these same signs are irrelevant, if not actually contradictory, to Bini intonation patterns.

Yet even when the vital necessity of tone-markings in Bini orthography is admitted, it remains a question how many distinctive tones shall be recognized and, once they are recognized, how they shall be represented.

In both his Dictionary and his Grammar, Melzian represented tones by means of dots placed in brackets after the corresponding utterances. When these utterances were of more than sentence-length, as in the folktale texts appended to his Grammar, he placed the tone-brackets under the corresponding utterances -- i.e., between lines. The difficulty with both these procedures, of course, is that they require hunting around to correlate tone-dots with the vowels or syllables to which they belong. Fluent reading or recitation become quite impossible -- except, ironically, for a native-speaker who generally ignores the dots and infers tone from context alone!

Moreover, it is not only on the level of transcription that Melzian's tone-indications cause the reader difficulty. They are, if anything, even more confusing on the level of description. For, despite his isolated use (significantly enough, a hapax legomenon) of the magic word "toneme", he never makes it clear whether he is speaking on the phonemic or the allophonic level. Hence, almost any inventory of phonemic tones, from a bare minimum of three to an imposing maximum of 125, *can* be defensibly inferred from his materials! The author's feeling here is that Melzian *probably* intended, in his Dictionary, to admit six phonemic tones (three level, one rising, and two falling); and, in his Grammar, after having acknowledged the existence of one additional tone-level, nine phonemic tones (four level, two rising, and three falling).

Wolff, on the other hand, gives a very clear description of Bini tone, interpreting it in terms of three tone-levels, three tone-types (level, rising, and falling), and a consequent phonemic inventory of nine tones. But the description is not accompanied by transcription. And when, in a later article of the same series,[6] he does present transcriptions, they seem not to exemplify his description -- at least not in the area of the glides, where this writer was unable to discover more than one type of rise or fall. In pragmatic terms, therefore, Wolff's inventory seems to come down to five phonemic tones.

In this Grammar, where six phonemic tones are recognized for Bini, all six will be marked and placed (following Wolff) immediately over those vowels which they accompany. The only cases in which vowels will occur without tone-marking are as follows: (1) when roots, stems, or affixes are cited apart from the tone-bearing words which they help to compose; (2) when verbs are cited out of grammatical context, apart from which they (unlike other parts of speech) have no tone; and (3) when rising diphthongs are represented, in which case only the first of the first two vowels involved is tone-marked. Thus, we will write *nọ̀día*, "which gets straight", but *nọ̀dl̀aá*, "which he straightens". The reason for this procedure is that, both tonally and temporally, verbs of this type pattern like the monophthongal pair *nọ̀bhẹ́*, "which gets wide", and *nọ̀bhẹ̀ẹ́*, "which he widens". In hurried speech, in fact, such rising diphthongs become monophthongal, and may be re-phonemicized (and hence re-written) as *nọ̀dyá*, and *nọ̀dyàá* respectively.

---

[6] "Niger Delta Languages I: Classification", *Anthropological Linguistic* 1959.

The use of graphically post-vocalic n to represent phonemically covocalic nasalization is rarely ambiguous, since consonantal n does not occur finally or pre-consonantally. For that reason we shall here follow the Standard orthography in this regard as well. Only rarely does a nasal vowel occur prevocalically in a context where it can be interpreted as a consonant -- as in *fànémà*, which means "to loosen a yam (from the yam-stack)" when its *n* is phonically co-vocalic but "to loosen a lot of yams" when its *n* is phonically intervocalic or consonantal. In this case we will violate our phonic purism to the extent of using a quasi-morphemic punctuation-mark, to wit, the apostrophe, in the former case, writing *fàn'émà* for the non-pluralic verb but *fànémà* for (a common variant pronunciation of) its pluralic derivative. And even this device need seldome mar the simplicity of our transcription, since nasal-oral vowel-sequences are temporally highly unstable, occurring usually at no more than one of the slower speech tempos, with the result that in normal speech the non-pluralic verb phrase is pronounced *fèénmà* and easily distinguished by ear from *fànèénmà*.

Because of the mutability of the Bini phonemic system at varying speech-tempos, the author has appended to his graphic inventory six more symbols (two simplices, two digraphs, and two trigraphs), to be used only when unusually accelerated or decelerated speech is to be transcribed.

These are: *c* and *j*, *sh* and *zh*; and *gyh* and *gwh*. The first pair are pre-palatal affricates, voiced and voiceless respectively; and the second pair pre-palatal spirants, correspondingly contrasted. The third pair are voiced velar spirants, palatized and labialized, respectively. At a slightly accelerated tempo, *c* and *j* occur merely as porte-manteau allophones of the pre-vocalic sequences *ti* and *di*. As such they need not be specially represented, since the phonetic sequence *nọ̀cèé*, "which he is reciting", can always be re-phonemicized as *nọ̀tìèé*. When, however, the tempo of speech is maximized, the clause *nọ̀kìeé*, "which he is unlocking", also comes to be pronounced *nọ̀cèé*. At this point the *c* must be recognized as phonemic, since it has become impossible to decide, on purely phonic grounds, whether one is hearing pre-vocalic *ti* or *ki*.

The digraphs *sh* and *zh* have a similar justification. As speech-tempo increases, the syllable *siẹn* becomes, for some speakers at least, *shẹn*, and as such remains phonemically re-interpretable as *siẹn*. But when, at a maximal pace, *rhiẹn* also becomes *shẹn* for these same speakers, re-interpretation becomes problematic and a new phonemic pair must be recognized.

The need for *gyh* and *gwh* is antipodal to that for *c* and *j*. That is to say, *gyh* and *gwh* are phonemes which are heard only in the most decelerated speech and which, at ordinary tempos, merge with *y* and *w*. Examples of this distinction for *w* are the members of the minimal pair *ùwú*, "death", and *úwú*, "interior", which, when they follow a noun ending in low tone, become homophonous at ordinary tempos. In ceremonious speech, however, they can still be distinguished, at least by some speakers, as *-úgwhú* in the former case and *-úwú* in the latter. (That this distinction is no phonological phantasy is attested to by the fact that *gwh* usually seems to be cognate with some kind of velar consonant and *w* with some sort of labial consonant in most of the other Edo languages.) And the reason for writing these ephemeral phonemes *gyh* and *gwh* rather than *ghy* and *ghw* is to avoid confusing them with the rapid-tempo cluster-variants of prevocalic *ghi* and *ghu*. Although the two pairs are sufficiently similar phonetically that they might be lumped on these grounds, on phonotactic grounds the former pair must not be treated as spirant-semivowel sequences, since such sequences do not begin to appear until ordinary speech becomes markedly accelerated.

Standard (C.M.S.)[1]	Catholic Mission[2]	Melzian's Dictionary	Wolff's S.T.A.L.[3]	Bradbury[4]	Wescott's Grammar[5]
1. The voiceless velar spirant kh		x	x		kh
2. The voiced velar spirant gh					gh
3. The voiced bilabial spirant vb		v	b		bh
4. The voiced bilabial spirant before nasal vowels, mw		ṽ	b	v	bh
5. The nasalized bilabial semi-vowel w-n, nw-n, nw		nw	ŋw		w-n
6. The nasalized palatal semi-vowel y-n, ny-n, ny		ny	ñ		y-n
7. The postconsonantal prevocalic high back vowel, Cu		Cu, Cw[6]		Cw[6]	Cu; Cw
8. The postconsonantal prevocalic high front vowel, Ci		Ci, Cy[7]		Cy[6]	Ci; Cy
9. The voiceless apical trill rh		rh	r		rh
10. The voiced retroflex lateral r	ṙ	ɽ	rl	r	rl
11. The voiced nasalized retroflex lateral r		ɽ̃	rl	r	rl
12. Vowel nasalization, -n		~	~		-n
13. The mid-low back vowel ọ		ɔ	ɔ		ọ
14. The mid-low front vowel ẹ		ɛ	ɛ		ẹ
15. Level tones[8]		3L (4L)[9]	3L		6L
16. Rising tones		1R (2R)	3R		
17. Falling tones		2F (3F)	3F		

---

[1] Church Mission Society

[2] Symbols cited only when they differ from those of the Standard Orthography

[3] Symbols those published in Wolff's AL article "Subsystem Typologies"

[4] Symbols cited only when they differ from those used by Melzian

[5] Different from those published in Wescott's AL article "Bini Metalinguistics"

[6] Only after velar consonants; elsewhere u is used exclusively

[7] Only after velar consonants; elsewhere i is used exclusively

[8] Tone-markings are not used in the Standard, Catholic, or Bradbury orthographies

[9] Numbers in parentheses are those inferred from Melzian's typescript grammar

Section 2: Allophones

A phonological specialist would probably wish to describe the sounds of any language he studied on at least five analytical levels -- the level of distinctive features, that of phones, that of allophones, that of phonemes, and that of morphophonemes. Since, however, few of the people now interested in Bini are professional phonologists, we shall here dispense with the first two levels, except insofar as they may be implicit in a thorough treatment of the third.

Provisionally, let us define an allophone as a speech-sound that may be discriminated from similar but not identical speech-sounds by means of the trained human ear alone. In this regard it differs from a distinctive feature, which cannot be heard at all by itself and which becomes audible only when incorporated into some higher-level unit; from a phone, which, though actually articulatorily (and hence auditorily) unique, cannot be distinguished from closely similar phones except by means of a sound-spectrograph or some comparable mechanical aid; from a phoneme, which is a group of allophones treated by an untrained native speaker (and therefore also heard by him) as functionally equivalent; and from a morphophoneme, which is a group of phonemes that function, despite their gross dissimilarities to the ear, as mutual equivalents in certain grammatical contexts.

The distinctive features of each individual allophone, though not separately listed, can be deduced from the allophonic tables below by combining the notations at the top and at the sides of those tables. And phones can be extracted from the allophones by simple acts of successive articulation, since, at least in terms of the above definition, each individual occurrence of any given allophone is automatically unique, however similar to all other occurrences it may seem both to its articulator and to its auditor. Thus, if we pronounce the Bini allophone [s] three times, we will automatically have heard the three Bini phones [s_1, s_2, and s_3]; and so on, ad infinitum, in regard either to [s] or to any other allophone we select.

In the tables which follow, no attempt will be made to distinguish the various phonic "realms" of Bini: all dialects and idiolects are represented, as are all speech tempos, all degrees of xenophony (incorporation of foreign speech sounds into Bini, chiefly through loan-words), and all degrees of paraphony (the occurrence of "exotic" sounds in exclamatory and imitative utterances). Not till we come to enumerate Bini phonemes will we seek to specify limitations on the occurrence of each of the allophones.

Table 2

NON-SYLLABIC ALLOPHONES IN BINI

	clicks	stops	spirants	nasals	taps	flaps	retroflexes	retrolaterals	laterals	semi-vowels
bi-labial		b	ʋ	m						
unvoiced	p*	p	ɸ	m·						
nasalized			ʋ̃							
labio-dental			v							
unvoiced	t*		f							
alveolar		d	z	n	r	ɾ	ɻ	ɭ	l	
unvoiced		t	s		r·	ɾ·	ɻ·	ɭ·	l·	
nasalized						ɾ̃	ɻ̃	ɭ̃		
pre-palatal		j	ž	ň						
unvoiced	c*	c	š							
nasalized										
palatal			ʝ							y·
unvoiced			ç							y
nasalized										ỹ
velar		g	ɣ	ŋ						
unvoiced		k	x							
nasalized			ɣ̃							
labialized			(ɣ	(ŋ						w
unvoiced			x							w·
labialized			(x							
nasalized										w̃
labialized										
glottal			ɦ							
unvoiced		ʔ	h							

The consonants listed in Table 2 are, for the most part, adequately defined by the terms in the columns at the top and side of the sheet. Clicks may be defined as stops with simultaneous velar suction. Flaps, retroflexes, and retro-laterals are all characterized by apical retraction -- that is, by a curving back of the tongue-tip. Flaps differ from the other two in that the tongue-tip is rapidly flipped forward during their articulation. Retroflexes are articulated by the tip of the tongue against the mouth. Retro-laterals[1] maintain this tongue-tip retroflexion but are actually articulated by the side of the tongue against the side of the mouth.

Bini [p*] is identical with the "kiss-noise" sometimes used by English-speakers to attract dogs or cats. [c*] is only slightly further back in the mouth than the English paralinguistic click of disapproval variously spelt "tch-tch", "tsk-tsk", and "tut-tut". [t*], which involves both the inner lips and the teeth, is roughly intermediate in sound between [p*] and [c*].

Bini voiced stops are generally lenis and unaspirated, as in English, while voiceless[2] stops are fortis and semi-aspirated. In other words, Bini voiceless stops have a degree of aspiration about mid-way between that of French voiceless stops, which is minimal, and that of English voiceless stops, which is considerable. Bini [p, t, k, b, d, and g] are, with this proviso, virtually identical with their English graphic equivalents.

---

[1] If the astro-engineers can invent retro-rockets, there seems little reason why ethnolinguists cannot counter with retro-laterals.

[2] Technically, 'unvoiced' means "deprived of voice", while 'voiceless' means "devoid of voice (from the outset)". For ordinary purposes, however, the two terms are synonymous.

Bini [c and j] are nearly intermediate in point of articulation between Bini [t and d] and Bini [k and g] respectively. The nearest English equivalents to them are the *c* of English "cue" and the *g* of English "argue".

[ʔ] is the "voice catch" heard in the English exclamatives "uh-uh" and "oh-oh". It is also heard replacing the *t* in certain New York, London, and Edinburgh pronunciations of words like "bottle".

Spirants, also called fricatives, are in a sense "unstopped stops", whose articulation may be indefinitely prolonged with friction. Bini [ʋ] is indistinguishable from the *b* in Spanish "haber". It is, in effect, an English *v* in which the upper lip replaces the lower teeth in creating the friction which distinguishes it from a stopped *b*. Bini [ʋ̃] is the same sound with simultaneous nasality and somewhat weaker articulation. To an English or Yoruba ear, it sounds rather like a cross between *m* and *w*, which is probably the reason for the Standard Orthographic digraph *mw*. Bini [ɸ] is the voiceless counterpart of [ʋ]. It is roughly intermediate between English *h* and English *f*. Some English-speakers use it in the exclamatory utterance spelt "phew".

Bini [f, s, v, and z] are indistinguishable from their English equivalents.

Bini [š and ž] are like the *sh* and *s* in English "ship" and "pleasure" respectively, except that the Bini sounds are never accompanied by even partial lip-rounding.

Bini [ç and j] are similar to the *ch* and *j* in German "ich" and "jenes" -- especially in the more fricative pronunciation of the latter word. When it is pronounced with audible friction, English h in "hue" comes close to this [ç]. [j] is the same sound with simultaneous voicing.

Bini [x and γ] are very close to the ch in Standard German "ach" and the g in North German "sagen", except that the Bini sounds are never pronounced with uvular rather than velar articulation. [x̂] and [γ̂] are the same sounds with simultaneous lip-rounding. [γ̃] is [γ] with simultaneous nasal vibration.

Bini [h] is indistinguishable from the h in English "hat". Bini [ɦ], its voiced equivalent, is sometimes heard replacing a voiceless h in English "aha" or "vehicle".

Bini [m and n] are indistinguishable from their English equivalents. Bini [m̥] is indistinguishable from the initial voiceless nasal in the English expletive "hmph", which might be described as the noise made in "clearing the nose". Bini [ň] is the somewhat retracted n sometimes heard in English "singe". Bini [ɲ] is indistinguishable from the gn of French "agneau" or the ñ of Spanish "año". It is like the ny of English "canyon", but with simultaneous rather than sequential articulation. Bini [ŋ] is indistinguishable from the ng in English "sang". Bini [ŋ̂] is the same sound with lip-rounding. It is like the ngw in English "ring-worm", but with simultaneous rather than sequential articulation.

Bini [r] is indistinguishable from the r of Spanish "pero" and almost indistinguishable from that of British English "very".

Bini [ɾ] is very close to the so-called "dental flap" or "voiced t" heard in most American pronunciations of English "city". It is roughly intermediate in sound between Bini [r] and Bini [ ].

Bini [ɹ] is almost indistinguishable from the initial r most commonly heard (outside Scotland) in English "red".

Bini [ɽ] is [ɹ] with simultaneous lateral articulation. It sounds like a cross between the r in English "red" and the l in English "full". I could also be described as like the rl in American English "early", but with simultaneous rather than sequential articulation.

Bini [l] is indistinguishable from the l in French "lit". It is more like the l in English "lip" than like that in English "pull".

Bini [ɾ̥ɾ̥, ɾ̥, ɽ̥, ɹ̥, ɽ̥, and l̥] are voiceless or whispered equivalents of the preceding six allophones.

Bini [ɾ̃, ɹ̃, and ɽ̃] are Bini [ɾ, ɹ, and ɽ] with simultaneous nasality. The first of them is virtually identical with the monophonic "flapped nasal" representing nt in most American pronunciations of English "enter".

Bini [y] is indistinguishable from that in English "yam". Bini [y̥] is like the voiceless semi-vowel sometimes heard in English "hue" when this word is pronounced without audible friction. Bini [ỹ] is close to the y in English "canyon", but rather more nasal.

Bini [w] is indistinguishable from that in English "was". Bini [w̥] is close to the voiceless semi-vowel sometimes heard in Northern British and Western American pronunciations of English "what". Bini [w̃] is close to the w of English "ring-worm" or the o of French "moins", but is more nasal than either of them.

Table 3 SYLLABIC ALLOPHONES IN BINI

	front	front central	central	back central	back
voiceless spirants	š	s			
voiced spirants	ž				
voiced semi-vowels		rr			m
high vowels	i				u
mid-high vowels	ɪ				ʊ
mid vowels	e				o
mid-low vowels		ɛ		ɔ	
low vowels		æ	a	ɑ	

When syllabic, Bini [š, ź, s, rr, and m] are as described above, but longer and carrying discriminable pitch.

Bini [i] is indistinguishable from the i of French, Spanish, or Italian "si". It is intermediate between the i of English "it" and that of English "machine", being higher and tenser than the former, but shorter and more monophthongal than the latter.

Bini [ɪ] is similar to the i of English "it", but tenser.

Bini [e] is indistinguishable from the e of French "été" or Italian "sete". It is intermediate between the i of English "pit" and the e of English "pet", but tenser than either. It is also like the a of English "ate", but higher, shorter, and more monophthongal.

Bini [ɛ] is qualitatively indistinguishable from the first e in French "bête" or Italian "bene", but usually shorter.

Bini [æ] is very close to the a of English "pat", but slightly tenser.

Bini [a] is indistinguishable from the a of French "là". It is intermediate between the a of English "pat" and the a of English "pa".

Bini [ɑ] is qualitatively close to the a of English "pa", but shorter.

Bini [ɔ] is indistinguishable from the o of French "fort" or Italian "buon". It is intermediate between the o of British English "cot" and the au of (British or American) English "caught". It is like the o in American English "or", but shorter.

Bini [o] is indistinguishable from the vowel of French "eau" or the homophonous Italian word "o". It is qualitatively indistinguishable from the o of Scottish English "go", but usually shorter. It is like the o of American English "go", but more monophthongal. It is more like the o of

British English "gore" than of British English "go".

Bini [ʊ] is like the u of English "put", but tenser.

Bini [u] is indistinguishable from the ou of French "fou" or the u of Italian "fu". It is intermediate between the u of English "bush" and the oo of English "boot", being higher than the former but more monophthongal than the latter.

Allophonic consonant clusters are common in Bini: Clusters consisting of consonant plus [y] may have as their initial component any consonant except [l, r̃, ɹ, ɽ, or y]. (E.g., [py, by, ty, dy], etc..) Clusters consisting of consonant plus [ẏ] are only about half as common, since only voiceless consonants may form their initial component. (E.g., [pẏ, tẏ, kẏ] etc..)

Clusters consisting of consonant plus [w] are also common. Only [p, l, r, y, and w] are not found as initial components. (E.g., [tw, dw, kw, gw], etc..) Clusters consisting of consonant plus [ẉ] are only about half as common, since only voiceless consonants may form their initial components. (E.g., [tẉ, kẉ, sẉ, xẉ], etc..)

In addition, the four labio-velar clusters [kp, gb, kṃ, and gm] deserve special mention. In all four, the velar stops are articulated before the labial consonants following them, but velar and labial release are simultaneous. They are also unusual in that the normal fortis-lenis relation between Bini stops is reversed in them, [kp, and kṃ] being lenis but [gb and gm] fortis. The nearest English equivalents are the ckp, gb, cm, and gm in "check-point", "rugby", "acme", and "stigma" respectively.

Bini [tš and dž] are indistinguishable from the c in Ibo cé "to collect" and the j in Yoruba jẹ, "is". They are like the ch in English "check" and the j in English "jet", except that the Bini spirants ending the clusters never show lip-rounding.

All Bini single consonants may be prolonged or doubled when intervocalic. The doubled tap [rr] is probably best considered under this head, although those phonologists who correlate trills with taps and flaps rather than treating them as geminate taps will perhaps prefer to regard our [rr] sequence as a single consonant and re-write it accordingly. In either case, Bini [rr] is phonetically indistinguishable from the rr in Spanish or Italian "guerra", and close to the initial r of "rat", "rat", or "Rat" as these are often pronounced in Stage English, Southern French, and Rural German respectively.

Bini has only eight allophonic clusters involving three consonants each. These are: [kpw, kmw, gbw, gmw; kpy, gby, and gmy]. They are simply sequences of sounds or sound-clusters a phonetic description of which has already been given. (Although [kmy] is phonologically quite as admissible as [kmw] or [kpy] above, in actual fact it seems not to occur.)

The last triple consonant is [rry], which is also self-descriptive as to its components. But, as we observed earlier, it can alternatively be treated as a di-phonic cluster of trill plus semi-vowel rather than as a tri-phonic cluster of geminate tap plus semi-vowel.

Vowels may also occur in clusters of two and three, although many of the double vowels and most of the triple vowels are unstable.[3] Although no vowel cluster is wholly stable in the sense of remaining unchanged at all speech-tempos, and none is wholly unstable in the sense that it never occurs at any tempo, there is still considerable variation in the degree

---

[3] For a more precise technical definition of "phonic stability", see the subsequent section on "Speech Tempo".

of stability of each cluster. These degrees are perhaps best illustrated in a separate table. For the sake of brevity, the table will be schematized to the extent that only three "extreme" vowels (high-front, high-back, and low-central, respectively) are represented.[4]

Table 4 VOWEL-SEQUENCE TYPES: three components only, maximally differentiated

most stable	1	**aa, ii, uu**
	2	**ia, ua**
	3	**aaa, iii, uuu**
	4	**iaa, uaa**
	5	**iia, uua**
less stable	6	**ui**
	7	**uui**
	8	**ai**
	9	**iai, uai**
	10	**au**
	11	**iau, uau**
	12	**aai**
	13	**aau**
	14	**uia**
	15	**iu**
	16	**iiu**
	17	**iua**
least stable	18	**aui**
	19	**aiu**
	20	**aia**
	21	**aua**

---

[4] **A more complete statement on vowel confluence is given in the subsequent section on "Phonotactics".**

Generalizing from Table 4, we may say that, in Bini, diphthongs are generally stabler than triphthongs, homovocalic sequences stabler than heterovocalic sequences, rising polyphthongs stabler than falling polyphthongs,[5] frontward-falling polyphthongs stabler than backward-falling polyphthongs, back-front sequences stabler than front-back sequences, and monocentric sequences stabler than dicentric sequences.[6]

To gain some notion of the stability of vowel-sequences which include "intermediate" vowels (e, ɛ, ɔ, and o), we may cross-cut Table 4 by means of a full-range segment (represented on Table 5).

Table 5 VOWEL-SEQUENCE TYPES:
divocalic only, with a as sequence-head

1	most	aa	
2	stable		ia, ua
3		ai	
4	less	ae; au	
5	stable	aɛ; ac	
6		aɔ	
7	least		ea; oa
8	stable		ɛa; ɔa

Unlike vowels and consonants, prosodic allophones -- that is, p[illegible]ch-contrasts and speech-interruptions (or tones and disjunctures) -- are difficult, if not impossible, to discriminate individually and must be heard in context to be clearly identified. We will consequently not take them up until we have reached the phonemic level of analysis.

---

[5] The terms "rising" and "falling", of course, here refer to sonority and not to pitch.

[6] A monocentric sequence has one peak of sonority; a dicentric sequence has two.

Section 3: Stress

Let us begin by defining stress as variable loudness of vowel-articulation.

Although it has no phonemic stress, Bini, like all other known languages, does have phonetic stress; and, once assessed, this stress can serve as a valuable phonic clue to syllabification and intonation.

Bini stress correlates positively with the following five phonic factors, listed in order of importance:

5 glide (tone-shift)
4 pitch (tone-height)
3 quantity (vowel-length)
2 sonority (openness ov vowel)
1 priority of occurrence

Each of these five factors, in turn, contains sub-orders within itself. Thus, if we give a single level-toned vowel the stress value of 1, vowels carrying tone-glides (shifts from one tone-level to another) can be variously rated with stress values from 2 to 6 as follows:

6 stress units: top-to-bottom fall[1]
5 stress units: top-to-flat fall[1]
4 stress units: top-to-low fall[1], or
bottom-to-top rise[2]
3 stress units: top-to-mid fall[1], or
flat-to-top rise[2]
2 stress units: top-to-high fall[1],
low-to-flat fall[1], or
low-to-top rise[2]

---

[1] For exposition and definition of tonal terms, see below, section on Phonemes. (Although circularity of description is to be avoided when possible, in actual practice it is often inevitable. And it can have the pedagogic merit of showing the reader how the investigator actually arrived at his conclusions.)

[2] Assuming minimal output of speech-effort needed to make meaning clear.

Second, individual level tones vary in stress value on both a relative and an absolute basis. In relative terms, tones may be rated as follows, reading from maximal stress to minimal:

6 - top tone
5 - high tone
4 - mid tone
3 - low tone
2 - flat tone
1 - bottom tone

In addition, it must be remembered that the general pitch (and hence stress) level of any breath-group tends to decline steadily until a fresh breath is taken and a new breath-group begun. Hence, a sequence top-low-top-low-top-low will not actually have the 6-3-6-3-6-3 stress pattern implied in the diagram above, but rather a pattern of 6-3-5-2-4-1.

On the other hand, the inherent pitch ranges of individual speakers, different though they may be, do not necessarily produce correspondingly discrepant stress ranges. In this sense, then, the relative-versus-absolute distinction drawn above ought puristically to be rephrased as a distinction between "relatively relative" and "relatively absolute" (!) pitch-and-stress levels.

Third, stress varies directly with vowel-quantity, of which at least four degrees can be phonetically discriminated. These four lengths, here listed from maximal to minimal, may be illustrated as follows:

4 vúun, "very deep"
3 vọ̀ọ́n, "to fill"
2 vọ́n, "to be full"
1 víẹ, "to weep"

Because the vowel of the adverb "deep" is audibly longer than that of the verb "fill", the adverb is sometimes written vúuun. In the case of the verb "weep", only the quasi-vowel[3] i is ultra-short, the ẹ being of the same length as the ọ in the verb "be full".

A more compact illustration of vowel-length contrast is offered by the adverb gégeege, "very high", in which the first e is only about half the length of the last. In phonetic transcription, the above contrasts could be rendered either as

[g^{e}ge^{e}ge] and [vũũ]

or as

[gegeeegee] and [vũũũũ],

the meaning in either case being that the first syllable exhibits 1 mora of length, the second 3, the third 2, and the monosyllable 4.

Fourth, stress varies directly as vowel-sonority, the order of sonority (or resonance) among vowel allophones being as follows, where each digit designates one unit of sonority:

11 - a
10 - ɑ
9 - æ
8 - ɔ
7 - ɛ
6 - o
5 - e
4 - ʊ
3 - ɪ
2 - u
1 - i

Fifth, stress varies directly as order of occurrence in an utterance. Thus, in a word like ágágá, "many chairs", where other relevant conditions

---

[3] A quasi-vowel is a high vowel which, in accelerated speech, becomes a semi-vowel.

(i.e., level, pitch, length, and sonority) are equal, the first *a* gets the most stress, the intermediate *a* intermediate stress, and the last *a* least stress.

Vowel quality (i.e., orality or nasality) seems to have no correlation, either positive or negative, with stress.

In those paraphonic utterances in which consonants are treated as syllabic nuclei, the order of stress is as follows, moving from maximal to minimal:

5 - m
4 - rr
3 - ž
2 - š
1 - s

Needless to say, no stops can carry stress, even in paraphonic utterances.

Summarizing, then, we can say that, among monosyllables, the exclamative *sáà*, "Get out!", represents maximal stress and the exclamative *śss*, "Hush!", minimal stress in Bini.

Section 4: Syllables

In terms of the syllabic typology proposed by Hockett,[1] the Bini syllable is defined rather by sonority and quantity than by onset or disjuncture. It may, phonetically speaking, contain up to seven allophones -- two tones and five segmentals (consisting either of three consonants and two vowels or two consonants and three vowels). It must contain at least two allophones -- one vowel and one tone. Its onset may have from three to no consonants. Its nucleus may consist of three vowels and must consist of one, which constitutes the peak of the nucleus. Its coda may consist of one consonant or of none.

---

[1] Charles F. Hockett, *A Course in Modern Linguistics*, Macmillan Co., New York, 1958, pp. 99-100.

Taking a as our syllabic peak, we can draw up a maximal inventory of phonetic syllable-types as follows:

V	1	[á]	"oh!"
CV	2	[bà]	"watch"
CCV	3	[kmã̀] (part of an adverb)	
CCCV	4	[ṛṛwã]	"clothe"
VV	5	[ã̀ã]	"eh?"
CVV	6	[sáà]	"shoo!"
CCVV	7	[gbáà]	"here, boy!"
CCCVV	8	[kpyáu] (part of a phrase)	
CVVV	9	[gwáe]	"dig"
CCVVV	10	[kpìau] (same phrase, pronounced more slowly)	
VC	11	[áŋ] (part of a compound)	

Translating this inventory from allophonic into phonemic terms expands it in some ways but contracts it in others: Phonemically, every syllable must have not only a vowel and a tone but a quality (oral or nasal) as well. However, as we observed above, it is not necessary to indicate orality in our ordinary orthography. Phonemically, all the segmental phonemes in a syllable must be separated by minimal disjunctures (to prevent their becoming simultaneous), but here, too, the disjunctures in question are normally left unmarked in ordinary orthography, since they are the commonest of all segmental prosodics. Phonemically, no syllable may have more than one consonant in its onset[2] or have any consonant at all in its coda; and no nucleus may contain more than two vowels.

In these terms, several of our phonetic syllables must be phonemically re-written, whereupon they may become sequences of two or three phonemic syllables. Thus, [km͡ã] becomes /kpàn/[3], [gwáe] becomes /gua e/, [kp̀láu] becomes /kp̀l á ù/, and [ág] becomes /ágá/.

Even on the phonetic level, however, the syllable [ág] is enough of a typological rarity to require special discussion. Briefly, it may be explained as follows: A phonetic syllable may end with any consonant except a labio-velar stop, provided that it is followed (without more than a minimal disjunctural interval) by an identical consonant in the onset of the following syllable. In practice, this confines occurrence of the abovementioned type of syllable to a phonically restricted infra-class of nouns here called "syllabic echoics".[4] These nouns consist of a vowel-prefix followed by two identical or nearly identical syllables containing a consonant and only one vowel. Representative examples of this noun type, with their phonetic abridgements, are:

ẹ́gógó [ɛ́ggó], "bell"
ósisî [óss̱î], "gun"
éwînwán [ɛ́ŋ̂ŋ̂ã́], "tick"

---

[2] Except in accelerated speech, when it may have two.

[3] The codal -n being graphic only, as we saw above.

[4] See below,

So far as the author has been able to ascertain, these are the only class of forms in which vowels may, even on the phonetic level, be lost between consonants. They are further restricted in that they occur only at hurried speech-tempo.[5] Geminate consonants, therefore, may be termed phonetically unstable as well as phonemically nonexistent in Bini.

Stress and syllabicity are closely linked in Bini. Phonetically, in fact, a Bini syllable could be defined as a sequence of allophones sharing one but not more than one maximal stress. One way of determining the number of syllables in a juncturally ambiguous utterance is by listening for heavy stresses. As long, for example, as the *e* in *ọ̀dáè*, "it poured down", sounds louder than the *a*, the clause may be said to contain three syllables (and ought therefore to be written, phonemically, as *ọ̀dá è*, or, metaphonemically, as *ọ̀dá'è*). However, once the *a* exceeds the *e* in volume, the clause must be recognized as syllabically contracted -- specifically, as disyllabic.

To be sure, the syllable *dáè* described above is highly unstable, being prone to assimilate, via *dáẹ̀* and *dáà*, to *dá*. And this brings us to the subject of syllabic stability in general: In Bini, the number of syllables per utterance fluctuates widely, a reduction in number commonly resulting from an acceleration of speech-tempo. Thus, words of three or even four syllables may become asyllabic when included in larger utterances. E.g.:

1>0 ágàrlùẹ́ > ágȁ, "your chair"

2>0 èné ọ́bá > nọ́bá, "the king"

---

[5] See below,

3>0 èdéghè ùmàá > dúmāá, "I trust you are well?"

4>0 èdé ìghè ùmàá > dúmāá (as above)

In fact, few Bini phrases can be formed without the loss of at least one syllable. Thus:

2>1 bárlè > báè, "watch him"

3>2 mẹ̀n ọ̀nọ́n > mẹ̀nnọ́n, "it's me"

4>3 òbhī ẹdó > òbhīẹdo, "a Bini"

5>4 ībàtà òdé > ībàtòdé, "Ode's shoe"

Another frequent cause of syllable-reduction in Bini is the elision (through the intermediate stage of an unstable disjunctural gap) of endolexemic[6] continuant consonants. Among these consonants, the most frequently elided are, in order of frequency, rl, gh, bh, and h. E.g.:

fẹ́ẹ́rlẹ́ > fẹ́ẹ́'ẹ́ > fẹ́ẹ́, "entirely"
ìdẹ̀nghẹ̀n > ìdẹ̀n'ẹ̀n > ìdẹ̀n, "kitchen knife"
ìdúnbhùn > ìdún'ùn > ìdúùn, "district"
ákìàhá > ákìà'á > ákìá, "three months"

Endolexemic stops are lost only in "syllabic echoic" nouns of the type described above. All stops except kp may be thus elided. E.g.,

ágágá > á'ágá > áágá, "chairs"
àtẹ̀tè > à'ẹ̀tẹ̀ > ààtẹ̀, "grain-tray"
ìgbīìgbè > ì'īìgbè > ììgbē, "by tens"

The type of de-syllabification seen in fẹ́ẹ́ < fẹ́ẹ́rlẹ́ and the type seen in áágá < ágágá merge in such elisions as:

órlérlé > órlé'é > órlé, "city"
ẹ̀ghúùghù > ẹ̀ghúù'ù > èghúū, "bush-crocodile"
ẹ̀rhùnghùnrhùnbhùn > ẹ̀rhùn'ùnrhùn'ùn > ẹ̀rhùnrhùn, "tail"

---

[6] Between vowels within words.

ẹ̀hîìhì > ẹ̀hîì'ì > ẹ̀hîī, "house-ant"

A few echoic nouns, such as ẹ́gógó, "bell", have several reduced forms -- [ɛ́ggó] and [ɛ́:gó] as well as [ɛ́gó]. Of these, the last is restricted to slurred (that is, maximally accelerated) speech. Whether [ɛ́:gó] represents a form temporally intermediate between [ɛ́ggó] and [ɛ́gó] or a phonetic alternative to [ɛ́ggo] is not clear. Idiolectal variability is considerable in such forms, and none of them are heard in slower speech.

Section 5: Nasality

The nasalization of vowels in Bini is a sufficiently complex and variable phenomenon to merit treatment separate not only from that of segmental allophones but also from that of other simultaneous sound-features, such as pitch and stress.

On a purely phonetic basis, no fewer than twenty-six different degrees of vowel nasality can be discriminated, at least for some speakers. These are illustrated in the accompanying table.

Needless to say, nothing like this many degrees of nasality are really distinctive -- that is, phonemic -- in Bini. Most speakers, in fact, have only two phonemic vowel qualities: zero nasality and total nasality, which we shall here refer to as oral and nasal vowel quality respectively. But the point at which the phonemic line between oral and nasal vowels is drawn varies from speaker to speaker. Some draw this line between items 8 and 9 on the table; some between 12 and 13; and still others between 16 and 17.

A few speakers seem reasonably consistent in using a semi-nasalized vowel in all of the items from 9 through 16. For them it may prove necessary to recognize a third distinctive vowel quality, referring to it as the phoneme of "semi-nasality". However, this quality has not yet been firmly established as semantically demarcating utterances with semi-nasal vowels both from otherwise homophonous utterances with fully nasal vowels and from otherwise homophonous utterances with fully oral vowels. Until it has been so established, it seems best to continue indicating no more than two vowel qualities -- oral (graphically zero) and nasal (written as a superscript tilde in phonetic transcriptions and as a sequent -- usually also syllable-closing -- _n_ in phonemic transcriptions.)

Table 6: DEGREES OF VOWEL NASALITY IN BINI

In the schema below, six phonic symbols are given generalizedvalue as follo

n = any nasal consonant

d = any non-nasal non-vowel.

ɛ̃ = any nasal vowel

ɛ = any "susceptible" vowel

e = any "resistant" vowel

l = any lingual consonant varying sporadically with a nasal consonant

(A "susceptible" vowel is one which occurs nasalized almost as often as it occurs oral. A "resistant" vowel is one which rarely occurs nasalized.)

1	nɛ̃		before n
2	nɛ̃		before d
3	nɛ̃	nɛ̃ + ɛ	before n
4	nɛ̃	nɛ̃ + ɛ	before d
5	dɛ̃		before n
6	dɛ̃		before d
7	dɛ̃	dɛ̃ + ɛ	before n
8	dɛ̃	dɛ̃ + ɛ	before d
9	nẽ	nɛ̃ + e	before n
10	nẽ	nɛ̃ + e	before d
11	dẽ	dɛ̃ + e	before n
12	dẽ	dɛ̃ + e	before d
13	nɛ	lɛ	before n
14	nɛ	lɛ	before d
15	nɛ	lɛ + ɛ	before n
16	nɛ	lɛ + ɛ	before d
17	ne		before n
18	ne		before d
19	ne	ne + ɛ	before n
20	ne	ne + ɛ	before d
21	ne	ne + e	before n
22	ne	ne + e	before d
23	dɛ		before n
24	dɛ		before d
25	de		before n
26	de		before d

Section 6: Segmental Phonemes

Many of the allophones which we listed in section 2 of this chapter can be grouped into classes called phonemes. But before we attempt to list Bini phonemes, let us classify the allophones we have already listed.

Bini allophones may first be divided, in terms of phonic domains,[1] into "euphonic" and "dysphonic" types. (As we use them, these two adjectives will mean, respectively, consistent and inconsistent with the restrictive phonic rules set forth in this section and in the subsequent section on phonotactics.) Dysphonic allophones, in turn, may be subdivided into paraphones and xenophones. Paraphones are speech-sounds found only in such paralinguistic utterances as exclamatives or imitatives.[2] Xenophones are speech-sounds found in foreign languages and occurring only in unassimilated loan-words.[3]

Euphonic allophones, on the other hand, occur only in direct association with Bini phonemes. These allophones are of two types -- supraphonemic and subphonemic. Supraphonemic allophones, which some authors call "portemanteau phones", are unit sounds which, on the next higher level of analysis, must be interpreted as phoneme-clusters. These clusters, in turn, may be of either of two types -- simultaneous and sequential. An allophone that "contains" two simultaneous phonemes is [ŋ] which, when it occurs between a consonant and a vowel, we here interpret as nasalized a (phonetically [ã] but orthographically an). An allophone which "contains" two sequential phonemes is [š], which, when it occurs intervocalically at less than maximal speech-tempo, we interpret as representing the sequence *si*.

---

[1] See below,

[2] See below,

[3] See below,

Subphonemic allophones are divisible into two types: free and restricted. Free allophones may appear, optionally, under any conditions where their phoneme occurs. Thus, [ɾ̱] can always represent *r*. Restricted allophones are of at least three subtypes: the first and most important of these is the positional subtype. Positional allophones are restricted to certain phonic environments -- as, for example, [ɲ], which represents *y* only before nasal vowels. A special subtype of positional allophone (which can be called an infratype of restricted allophone) is the componential allophone, which forms part of an allophonic cluster which, in turn, represents a unit phoneme. Thus, [ṃ] represents the labial component of the voiceless labio-velar stop before nasal vowels, this stop being a single phoneme in spite of its digraphic printed form *kp*.

Another type of restricted allophone is the temporal. Temporal allophones represent their phonemes only at certain speech-tempos. Thus, the allophone [rr] represents *r* only in the slower tempos; in slurred or hurried speech it is replaced by [r]. (This interpretation holds only if [rr] is treated as a single trill. If it is treated as a double tap, it forms an allophone cluster -- *q.v.* below.)

The rarest type of restricted allophone in Bini is the dialectal. Dialectal allophones represent their phonemes only in the speech of certain groups. The allophone [æ], for example, represents *e* only among juvenile speakers.

As representatives of phoneme clusters, allophone clusters are, as we have already seen,[4] quite common. But as representatives of unit phonemes, they are rare and require special treatment. There are, as it happens, eight such clusters, which can be grouped into four pairs on the basis of feature oppositions: The first pair, which exhibits a voiced/voiceless contrast throughout, is [tš/dž], representing the phonemes c and j (and not to be confused with [c/j], representing the phonemes k and g.) The second pair, which exhibits an initial stop/nasal contrast, is [gm/ŋm], representing the phoneme gb before nasal vowels. The third pair, which exhibits a final voiced/voiceless contrast, is [km/kṃ], representing the phoneme kp before nasal vowels. The last pair, which also exhibits a voiced/voiceless contrast throughout, is [rr/ṛṛ], representing the phoneme rl

The [tš/dž] contrast is a simple case of allophone/phoneme parallelism. Both the [gm/ŋm] contrast and the [km/kṃ] contrast are probably temporal in nature, though for some speakers they may exemplify free variation. The [rr/ṛṛ] contrast is dialectal for most speakers, but freely variant for a few.

The segmental (that is, sequential but non-prosodic) phonemes of Bini can be most succinctly diagrammed as follows:

	open	close	open	close	voiced	voice- less	voiced	voi les
frontal	ẹ	i	y	n	z	s	d	t
front-central	a	e	r	rh	gh	kh	g	k
back-central		o	rl	l	bh	h	gb	kp
dorsal	ọ	u	w	m	v	f	b	p
	vowels		liquids		spirants		stops	
	sonorants				obstruents			
	syllabics		non-syllabics				occlusives	
	continuants							

---

[4] Above, in Section 2.

The most compact diagram for vowels alone is as follows:

	front		back	
high	i		u	close
mid-high	e		o	
mid-low	ẹ		ọ	open
low		a		

The commonest (and in some cases the sole) allophone of each of these phonemes is as follows:

ẹ	[ɛ]	i	[i]	y	[y]	n	[n]
		e	[e]	l	[l]	r	[r]
a	[a]						
		o	[o]	rl	[ɽ]	rh	[ṛ]
ọ	[ɔ]	u	[u]	w	[w]	m	[m]
z	[z]	s	[s]	d	[d]	t	[t]
gh	[ ]	kh	[x]	g	[g]	k	[k]
bh	[ ]	h	[h]	gb	[gb]	kp	[kp]
v	[v]	f	[f]	b	[b]	p	[p]

Those phonemes that commonly have only one allophone each are as follows: ọ, i, e, o, u, l, n, m, v, f, d, t, b, and p.

The following phonemes commonly have more than one allophone each. (In each case the conditions under which the allophone usually occurs are stated.)

ẹ	[æ]	Dialectal. Children only.
a	[ ]	Positional. After labial and labio-velar consonants.
y	[ɟ]	Free variant.
	[ž]	Free variant for some speakers. For others a positional variant, occurring only before i.
	[ỹ]	Positional. Only before nasal vowels.
	[ɲ]	Temporal variant of the above pre-nasal allophone. Only in accelerated speech.
	[ỵ]	Positional and temporal. Only after voiceless consonants in accelerated speech.

w	[γ̂]	Free variant.
	[w̃]	Positional. Only before nasal vowels.
	[η]	Temporal variant of the above pre-nasal allophone. Only in accelerated speech.
	[w̥]	Positional and temporal. Only after voiceless consonants in accelerated speech.
rl	[ʎ]	Free variant.
	[ɾ]	Free variant.
	[ɾ̣̃]	Positional. Only before nasal vowels.
	[ʎ̃]	Positional. Only before nasal vowels.
	[ɾ̃]	Positional. Only before nasal vowels.[5]
r	[rr]	Free variant.
	[ɾ]	Free variant.
	[ɹ]	Free variant.
rh	[rr]	Free variant.
	[r]	Free variant.
	[ṛṛ]	Free variant.
	[ɾ̣]	Free variant.
	[ɹ̣]	Free variant.
	[ɽ̇]	Free variant.
	[ḷ]	Free variant.
z	[ž]	Dialectal. Only in "Yorubized" speech.
s	[š]	Dialectal. Only in "Yorubized" speech.
gh	[ɦ]	Free variant.
	[γ̃]	Positional. Only before nasal vowels.
	[η]	Temporal variant of above pre-nasal allophone. Only in accelerated speech.

---

[5] Melzian heard this as a "flapped nasal" (presumably [n̆]). Dictionary, p. xii.

kh	[ç]	Positional. Only before i.
	[x]	Positional. Only before u.
	[ɸ]	Positional. Free variant of above allophone before u.
bh	[ṽ]	Positional. Only before nasal vowels.
h	[ɦ]	Free variant, most commonly intervocalic.
	[ç]	Positional. Only before pre-vocalic i.
	[ɸ]	Positional. Only before pre-vocalic u.
g	[j][6]	Positional. Only before i.
k	[c][6]	Positional. Only before i.
gb	[gm]	Positional. Only before nasal vowels.
	[ŋm]	Temporal variant of preceding allophone. Only in accelerated speech.
kp	[km]	Positional. Only before nasal vowels.
	[km̥]	Temporal variant of preceding allophone. Only in accelerated speech.

To be sure, not all speakers actually use all of these phonemes: For many adult speakers, rl is in free variation with r. In regard to their dialect, it is probably best to write the joint phoneme as r and to say that it has, or may have [rr, £ , λ , and ɣ] as free variants.

Many children lack rl, rh, gh, bh, kh, gb, and kp. Those who lack them merge kp with p and both gb and bh with b. Some children merge rl with l and others with the speech-gap (the minor disjuncture). Some merge rh with r and others with h. Some merge kh with k and others with h. Some merge gh with g and others with h.

Other phonemic mergers are temporally rather than dialectally conditioned: In slurred speech i merges with y and u with w. It then becomes a largely arbitrary decision as to whether one shall write the merged phonemes as vowels or as semi-vowels.

---

[6] Note that these allophones are pre-palatal stops, not pre-palatal affricate:

Temporal factors, however, may cause phonemic split as well as phonemic merger: In ceremonious speech, some speakers make phonemic distinctions between fricative and frictionless semi-vowels.[7] For those who make this distinction, the fricative consonants may be written gyh and gwh and the frictionless consonants y and w. Phonetically, the former are usually [ɟ, ɣ̂] and the latter [y, w]. By those speakers who habitually pronounce y and w as spirants, however, gyh and gwh are sometimes distinguished as allophonic clusters -- [ɟy, ɣw]. These clusters do not overlap with the homophonous phoneme clusters ghy and ghw, since the latter may occur only in accelerated speech, while the former are, at intermediate speech-tempos, invariably merged with the semi-vowels y and w.

In slurred (i.e., maximally accelerated) speech, on the other hand, some speakers develop two new phonemic pairs, both of them involving prepalatal articulation -- viz., sh/zh and c/j.[7] The phoneme sh appears when both prevocalic si and prevocalic rhi cease to be phonetic clusters and merge in the porte-manteau allophone [š], at which point they can no longer be re-analyzed into their respective component parts. (For those "Yorubizers" who normally pronounce s as [š], all that happens at this tempo is that the above sequences lose their diphonemic status and merge with s: no new phoneme is created.) The phoneme zh appears when, in pre-vocalic position, zi and yi merge as [ž] and reconstitution of the clusters becomes, at this tempo, equally impossible.

---

[7] See above, under "Orthography".

(For Yorubizers, again, both sequences simply become *z*.)

The case with *c* and *j* is wholly analogous: *c* springs from a slurred-speech merger of pre-vocalic *ti* and *ki*, just as does *j* from a parallel merger of *di* and *gi*.

Nevertheless, the problem of phonemic overlap remains in the case of the lingual consonants *l*, *rl*, *r* and *rh*, a four-way phonemic contrast between which is exhibited by only about one out of four Bini-speakers. Two out of four speakers make a three-way contrast, while another one out of four preserves only a two-way contrast. Three-way speakers, in turn, may be divided on phonetic grounds into those who lose *rl* to *l*, those who lose *rl* to *r*, and those who lose *rh* to *r*. On the other hand, two-way speakers are homogeneous in preserving only *l* and *r*, and in losing *rh* to *r*; though they differ in their treatment of *rl*, some losing it to *l* and some to *r*.

As if this situation were not already complicated enough, it is further complicated by extremely heterogeneous distributions of lingual allophones, based on an interdigitation of positional, temporal, and dialectal factors. Some speakers, for example, have no fewer than six voiceless lingual allophones (all, of course, being variants of *rh*), while others have none at all; the majority, however, have at least one. Some pronounce *r* as [λ] initially but as [r] intervocalically, while others use [ɹ] for *rl* and [r] for *r* in all positions. Some unvoice *rh* in decelerated speech but voice it in accelerated speech. Some make the [r/rr] contrast temporal in nature and others positional, while still others make it phonemic, [r] representing *r* and [rr] representing *rh*. And so on.

All in all, linguals undoubtedly present the most chaotic phonic picture in Bini, just as vowels do in English. Since no less than twelve lingual allophones are audible in Bini, it would certainly not surprise this investigator to come across some individual who used as many as six of them phonemically. All he can say is that, to date, he has not yet encountered such an idiolect.

Reviewing our exposition of segmental phonemes in Bini, we find that, while the seven vowels are invariable, changing in number with neither tempo nor dialect, the consonants are quite variable in number, ranging from a minimum of 15 to a maximum of 30.

The "persistent" consonant phonemes of Bini (that is, those which are found in all dialects at all tempos) may be diagrammed as follows:

	lingual	nasal	labial	dental	dorsal	labial	dental	dorsal	
frontal	l	n	f	s	h	p	t	k	voiceless
dorsal	r	m	v	z		b	d	g	voiced
	liquids			spirants			stops		

The "ephemeral" consonants (that is, those which are lacking in some dialects and at some tempos) may be diagrammed as follows:

	apical	frictionless	fricative	palatal	velar	labial	palatal	labiovelar	
frontal	rh	y	gyh	sh	kh		c	kp	voiceless
dorsal	rl	w	gwh	zh	gh	bh	j	gb	voiced
	linguais	semi-vowels			spirants			stops	

(It will be noted that the spirant lacunae in these two diagrams are roughly complementary.)

Minimal contrastive pairs for the segmental phonemes of Bini follow:

i - in gi, "to allow" : gin, "to leak"
i - e wii, "to get lost" : wee, "to applaud"
i - u bii, "to stab" : buu, "to meet"

e - ẹ ze, "to be hard" : zẹ "to speak"
e - o fe, "to get rich" : fo, "to finish"

ẹ - ẹn gieẹ, "to break" : giẹen, "to burn"

ẹ - ọ	guẹ, "to know": guọ, "to shiver"
ẹ - a	khiẹẹn, "to twist" : khiaan, "to transform"
a - an	ba, "to watch" : ban, "to strip bare"
a - ọ	ba, "to watch" : bọ, "to build"
ọ - ọn	tọ, "to live long" : tọn, "to bury"
ọ - o	fọ, "to sweat" : fo, "to finish"
o - u	wo, "to be strong" : wu, "to die"
u - un	buu, "to meet" : buun, "to break"
in - ẹn	gbin, "to be blunt" : gben, "to write"
in - un	kin, "to dazzle" : kun, "to construct"
y - gh	ya, "to take" : gha, "shall"
w - v	waa, "to spread" : vaa, "to split"
l - rl	le, "to cook" : rle, "to eat"
l - r	le, "to cook" : re, "to inhabit"
l - rh	laa, "to keep carrying" : rhaa, "to steal"
l - n	la, "to pass" : nan, "to tell"
rl - r	rle, "to eat" : re, "to inhabit"
rl - rh	rlu, "to do" : rhu, "to cover"
r - rh	riee, "to depart" : rhiee, "to take"
rh - s	rhaa, "to steal" : saa, "to burst"
n - r	nin, "to decide" : ri, "to tie"
n - m	maan, "to show": naan, "to tell on"
m - bh	manman, "to compress" : bhanbhan, "to arrange"
z - s	zẹ, "to choose" : sẹ, "to reach"
z - r	ze, "to be strong" : re, "to come"
s - kh	sin, "to spin" : khin, "to be"
gh - g	gha, "shall" : ga, "to serve"
gh - kh	ghaa, "to warm up" : khaa, "to say"
bh - v	bhẹ, "to widen (i.)" : vẹ, "to open"
bh - w	bhẹẹ, "to widen (tr.)" : wẹẹ, "to say"
v - f	ve, "to price" : fe, "to escape"
h - f	họ, "to lay eggs" : fọ, "to sweat"
h - s	ha, "to pierce" : sa, "to scoop"
h - kh	hu, "to foam" : khu, "to chase"

d - t	da, "to afflict" : ta, "to speak"
d - r	de, "to fall" : re, "to come"
d - g	da, "to afflict" : ga, "to serve"
t - k	ta, "to speak" : ka, "to count"
k - kp	ka, "to count" : kpa, "to vomit"
g - gb	ga, "to serve" : gba, "to tie"
gb - kp	gba, "to tie" : kpa, "to vomit"
gb - b	gba, "to tie" : ba, "to watch"
b - bh	baa, "to shine" : bhaa, "to meet"
b - p	baba, "to grope" : papa, "to pat"
p - kp	pùpùpù, "fluttering" : kpùkpùkpù, "cowering"

Though they are no less phonemic than vowels and consonants, prosodics, such as tone and disjuncture, are so different from segmentals that it seems best to treat them in a separate section below.

Section 7: Prosodic Phonemes

Prosodics may be defined as phonic factors which determine speech-rhythm. They include stress, pitch, and quantity.

Quantity, in turn, may be divided into segmental and disjunctural types. On the subphonemic level, a minimal segmental contrast is that between [ágá] , "a chair", and [ággá] , "many chairs".[1] On the phonemic level, an equivalent contrast is that between òkó, "companion", and òkóó, "prince".[2] Disjunctural quantity, on the other hand, is the length of the speech interruption which prevents two segmentals from occurring simultaneously.

---

[1] See above, under Syllables.

[2] See below, under Phonotactics.

In this section we shall deal only with disjunctural quantity.

Since we have already dealt with stress as a subphonemic aspect of pitch, we shall here treat pitch only, which, on the phonemic level, we shall henceforth refer to as tone.

Beginning with the more complex of our two prosodics, tone, we find that Bini has six phonemic tones, which we shall here name and number as follows, reading from highest to lowest, and illustrating them in co-occurrence with the vowel a:

1	top	á
2	high	a̍
3	mid	a̎
4	low	à
5	flat	ā
6	bottom	a̿

Conveniently, the above numbers fit their corresponding tones in more than an ordinal sense, since short Bini utterances normally employ only six tone-levels. Moreover, five of the six tones are phonetically level, only the fourth, low tone, exhibiting a short down-glide from level 4 to level 5.

Because of this subphonemic glide, low tone has more stress than any other tone. All of the other tones, however, have stress consonant with their pitch. In order of loudness, then, our six-tone inventory must be re-diagrammed as follows:

4	low	à
1	top	á
2	high	a̍
3	mid	a̎
5	flat	ā
6	bottom	a̿

On both phonetic and metaphonemic grounds,[3] these six tones can be divided into an upper group, consisting of top, high, and mid, and a nether grou consisting of low, flat, and bottom. On metaphonemic and historical grounds[3] this division can be cross-cut by another, that into a primary group, consisting of top and low, and a derived group, consisting of all others. On both historical and dialectological grounds, the latter group can be subdivided into a secondary subgroup, consisting of high and flat tones, and a tertiary subgroup, consisting of mid and bottom tones. (By combining these three cla sifications, we can specifically identify any phonemic tone: Thus, the primary upper tone is top; the tertiary nether tone is bottom, and so on.)

A good minimal triad for the upper tones is as follows:

ádе̋, "Go ahead and fall." (from ghá, "shall", + dé, "fall")
áde̍, "Who falls?" (from ghá, "who?", + ọ̀-dé, "he falls")
áde̎ "Who's coming?" (from ghá, "who?", + ọ̀-dèé, "he's coming")

A technically correct, though colloquially improbable, minimal triad fo nether tone is as follows:[4]

ọ̀déè, "He fell." (from ọ-, "he", + dé, "fall", + -rlè, "did")
ọ̀déē, "Does he fall?" (from ọ-, "he", + dé, "fall", + -Arlà, "huh?")
ọ̀dée̿, "Did he fall?" (from ọ-, "he", + dé, "fall", + -rlè, "did",
+ Arlà, "huh?")

A wholly satisfactory minimal pair for low and flat tones, however, is as follows:

ágbèbhẹ́n, "Go on and hit me." (from ghá, "shall", + gbe, "strike", + bhẹ́n,[5] "me")

---

[3] See below, under Metaphonemes.

[4] The reason why these examples are artificial is that, in such cases of near-homophony, most speakers prefer to use periphrases which eliminate all possibility of ambiguity, especially in short utterances.

[5] The abridged allomorph of Àbhẹ́n, "me".

ágbēbhẹ́n, "Who's hitting me?" (from ghá, "who?", + ọ̀-gbé, "he strikes", and
 -bhẹ́n, "me")

An equally satisfactory minimal pair for low and bottom tone is as follows:

ọ̀bhẹ́nbhẹ̀n, "madman" (from ọ-, agential prefix, + bhẹnbhẹn, "to be insane")

òbhẹ́nbhẹ̿n, "trouble-maker" (from ọ̀bháàn, "person", + ẹ̀bhèn, "palaver")

A somewhat less satisfactory minimal pair for flat and bottom tone is as follows:[4] (preceding page)

ọ̀dérlā, "Does he fall?" (from ọ̀-dé, "he falls", + -Àrlà, "huh?")

ọ̀dérla̿, "Did he fall?" (from ọ̀-dé-rlè, "he fell", + -Àrlà, "huh?")

An ideal minimal tetrad for primary tones is as follows:

úwú, "the interior"
úwù, "boundary"
ùwú, "death"
ȕwù, "a chief's rib-tattoo"

To these may be added two utterances illustrative of both primary/secondary and secondary/secondary contrasts:

úwu̍, "You do die." (from Á-, intensive prefix,
 + ù-wú, "thou diest")

úwū, "Drop dead." (from ú-, "thou", + ghi, "should",
 + wu, "to die")

Unlike Yoruba, Bini has no absolute pitch. That is, no Bini monosyllable is tonally defined by phonetic level alone. If a Bini monosyllable begins with a level tone, that tone is interpreted as high even if its phonetic level is below three.[6] Conversely, if it begins with a short (i.e., one-level) glide, that glide is interpreted as a low tone even if its phonetic level is above four.[6]

---

[6] Derived tones are eliminated from consideration by rules preventing their occurrence in utterance-initial position. See below, under Phonotactic

Even as simple and phonemically stable a word as èbé, "book", may, in isolation, be given as many as 28 different tonetic renditions without any danger of ambiguity. Among older speakers, thirteen such tonetic possibilities are:

56-5, 56-4, 56-3, 56-2, 56-1
45-4, 45-3, 45-2, 45-1
34-3, 34-2, 34-1
23-1

Among younger speakers, fifteen such possibilities are:

6-5, 6-4, 6-3, 6-2, 6-1
5-4, 5-3, 5-2, 5-1
4-3, 4-2, 4-1
3-2, 3-1
2-1

The one absolute requirement, which is observed in all these variant pronunciations, is that the second syllable be higher in pitch than the first. It will be noted that younger speakers do not even trouble to give low tone the brief down-glide which generally characterizes it, the reasons being (1) that the following higher-pitched syllable prevents its being interpreted as an upper tone and (2) that the tonotactic rules of Bini prevent its being interpreted as a secondary tone. By elimination, this leaves us with low as the only interpretive possibility. (Needless to say, in cases where ambiguity is not so neatly eliminated, even younger speakers give low tone the down-gliding stress needed to distinguish it from other tones.)

Phonetically speaking, most Bini utterances exhibit a general over-all lowering of pitch as they move from the beginning to the end of a breath-group. Thus, in a word like íkẹ̀kẹ́, "bicycle", the second top tone is normally one level lower than the first; in a word like àrlábhẹ̀n, "animal", the second low tone is analogously one level lower than the first; and so o

The same holds for a series of lows, as in ùhòbò, "Urhobo", pronounced by older speakers as 34-45-56 or 45-56-67[7] and by younger speakers as 3-4-56 or 4-5-67.[8]

Top tones, however, are an exception to this phonetic rule when they succeed one another without interpolation of nether tones. Thus, a clause like nọ́rhīrhīghákhīn, "whoever it may be", will end on the same pitch as that on which it began, whether this is level 1, level 2, or even level 3 or lower.

Graphic problems arise with regard to complex sequences of primary and derived tones. There is little question that the sequence 1-1 should be written as top-top, 1-2 as top-high, and 1-3 as top-mid. But how shall we distinguish the sequence 1-2-2 from the sequence 1-2-3? If we write the former top-high-high and the latter top-high-mid, we will be forced to write the (less common but nonetheless occurrent) sequence 1-2-4 as top-high-low. But here we will encounter a contradiction, since utterance-final lows have one-level down-glides in all dialects and at all tempos. The best solution seems to be to write 1-2-2 as top-high-top, 1-2-3 as top-high-high, and 1-2-4 as top-high-mid. We can then add an interpretive statement to the effect that "top" means "higher than the preceding" when the preceding is a nether tone but "level with the preceding" when the preceding is an upper tone; that "high" means "one level lower than the preceding" in all environments; and that "mid" means "two levels lower than the preceding" in all environments. In other words, Bini, like Ibo (but unlike Yoruba), is what Welmers calls a "terrace-tone" language.

---

[7] In any utterance of more than two syllables, more than six phonetic tone levels may be required.

[8] Here the shortness of the drop from syllable to syllable is relied on to prevent the pre-final tones being interpreted as uppers.

Nether tones are no problem in this regard, since all nether tones are invariably lower in pitch than any tone that precedes them. Two other problems do arise with regard to nether tones, however. The first of these is the auditory difficulty of distinguishing a homosyllabic low-low sequence, as in bàà (4-6), "Shine", from an otherwise homophonous high-low sequence, as in báà (1-5), "Watch, won't you?" But in actual fact, the homosyllabic low-low sequence is unstable, occurring only in ceremonious speech: in ordinary speech it becomes homophonous with bà, "Watch". The second difficulty is that of distinguishing a top-flat sequence, as in nógīe, "the chief", from a top-bottom sequence, as in nóghe̿, "the lie". All that can be said here is that, for those who make this tonal distinction, the syllable -ghe is minimal in both pitch and stress, while -gīe has audibly higher pitch and stronger stress.

In actual fact, though, most speakers pronounce nógīe and nóghe̿ as tonal homophones. This is because only about one out of ten Bini really have six distinctive tones. About three out of ten, in fact, have only four distinctive tones (top, high, low, and flat; mid having merged with high and bottom with flat). The remaining six out of ten have five distinctive tones (top, high, mid, low, and flat; mid having resisted merger with high, while bottom succumbed to merger with flat). The co-existence of these three tonal dialects in Bini is mysterious, the more so as the author has thus far been unable to correlate them with social or geographic factors. (Once again, however, we may look for an analog in the English vowel-system, which -- by the author's reckoning -- varies, in the American dialect alone, from a maximum of ten to a minimum of five phonemes.[9])

---

[9] Counting the syllabic nucleus of bit as a vowel but that of beat as a sequence, and so on.

Tone-sequences and their temporal variants are treated below in the section on Phonotactics.

Though both are prosodics, a disjuncture differs from a tone in that it is sequential rather than simultaneous: that is, disjunctures occur before, after, or between segmentals, while tones occur during (or, graphically speaking, above) segmentals.

The nomenclature for disjunctures is more varied than that for most other phonic phenomena: Although all writers agree that they are speech-interruptions of varying length, the terms they use for these interruptions differ widely. Traditionalists still prefer to call them "hiatuses", which literally means "yawnings". British Africanists lean toward "junctions", that is, "joinings". Most American structuralists call them "junctures", which, like "junctions", means "joints" or "joinings". Our terminology here is that of Professor Robert Hall of Cornell University,[10] who prefers "disjuncture" on the grounds that it emphasizes the fact that these phonemes separate rather than fuse segmentals.

The four phonemic disjunctures of Bini can well be illustrated by the sentence

ọ́bá, ọ̀bà á
"O king, it is difficult."

In this utterance, the period represents a maximal disjuncture, or stop; the comma a major disjuncture, or pause; and the space (between *à* and *á*) a minor disjuncture, or gap.

The minimal disjuncture, or break, is not graphically represented,

---

[10] *Linguistics and Your Language*, Robert A. Hall, Jr., 2nd ed. Anchor Books, New York, 1960.

since it (1) is not audible in itself and (2) is so common that writing it soon becomes burdensome. In fact, it may be assumed to occur between all segmentals except where there is an explicit graphic signal to the contrary. Its function is to prevent coalescence of phonemes. Were it not for the minimal disjuncture, such syllables as *na* (as in nágá, "the chair") might become *an* [ã] (as in bȧn, "to snatch"), and such syllable sequences as *ọna* (as in ọ́nà, "this") might become a monosyllabic *aan* (as in àán, "eh?"). Because of its mainly negative function, minimal disjuncture is often ignored or denied phonemic status even by phonologists.

For that matter, even the minor disjuncture or speech-gap (represented by the intra-verbal space in the illustrative sentence) is not always audible as such. Instead, it may be heard only as a lengthening of the vowel which it precedes or -- more often -- as a lengthening of the entire word in which it occurs. Thus, *ba a*, "to be difficult" may be heard as disyllabi while *baa*, "to shine", is heard as monosyllabic; or *ba a* may merely be heard as a longer syllable than *baa*.

Since the occurrence of a gap invariably marks a morphic boundary, and since in most if not all cases it can be shown to have replaced an elided consonant, it is often analytically helpful (even if puristically improper) to represent the gap morphophonemically as an apostrophe and write *ba'a* rather than *ba a*. The pedagogical advantage of this procedure is that it reminds the learner that the syllables separated by a speech-gap do not necessarily belong to two different words: in the verb above, for example, the *a* following the gap is simply an extensional suffix.

Specialists in the developing linguistic discipline of discourse-analysis might wish to add a fifth phonemic disjuncture to our disjunctural inventory. This additional phoneme could be called total disjuncture, or silence. It would differ from the maximal disjuncture, or stop, in that a stop can be followed by another sentence in the same discourse, while silence (as here defined) could not. The nearest graphic equivalent to this fifth disjuncture in conventional orthographies is the paragraph, although the two are clearly not identical, since paragraphs usually separate "though groups" within a discourse rather than discrete discourses. On this subject we will have more to say in the section on Discourses in Chapter 4.

Because of the different environments in which they occur, true minimal contrasts for the disjunctures cannot be given. Near-minimal contrasts, however, will be presented and explained below, in the section on Tempo.

Section 8: Tempo

As we have indicated earlier, predictable variabilities in the Bini sound-system are far more often due to temporal than to dialectal factors. A change in speech-tempo can not only shorten or lengthen an utterance but can actually create or eliminate whole classes of phonemes.

Bini speech-tempos can be conveniently enumerated, named, and characterized as follows in Table 7:

Table 7: SPEECH-TEMPOS

number	name	positive characteristics	negative characteristics
1	ceremonious	fricative semi-vowels gyh and gwh	no derived tones
2	deliberate	high and flat tones	gyh and gwh lost
3	slow	mid and bottom tones	"weak" consonants lost between vowels
4	ordinary	triphthongs	"weak" consonants lost initially
5	rapid	e and o nasalized	triphthongs reduced to diphthongs
6	hurried	i and u become y and w before vowels	mid tone merged with high and bottom with flat
7	slurred	prepalatals c, j, sh, and zh	all syllables become monovocalic

These seven tempos can be further sub-grouped as follows:

First, tempos 3-5 can be bracketed as "intermediate" tempo, which is then contrasted with "extreme" tempo (1-2 and 6-7).

Second, tempos 2-6 can be bracketed as "normal" tempo, which is then contrasted with "abnormal" tempo.

Third, tempos 1-3 can be bracketed as "decelerated" tempo and tempos 5-7 as "accelerated" tempo. All of them then stand in collective contrast to tempo 4 (ordinary tempo).

When it seems necessary to distinguish between opposites within the peripheral categories, tempos 1 and 2 can be bracketed as "extremely decelerated" tempo and tempos 6 and 7 as "extremely accelerated" tempo.

By native speakers, little note is taken of speech-tempo -- except in the oblique sense that ceremonious speech is often said to sound "Ishan" and slurred speech "Yoruba".[1]

---

[1] See above, under Background.

Although temporal effects are most dramatic when they occur on the phonemic level, they do, of course, occur on the allophonic level as well. Thus, for example, the word ọ́gbàn, "thirty", is pronounced [ɔ́gbà̃] in decelerated tempo, [ɔ́gmà̃] in ordinary tempo, and [ɔ́ŋmà̃] in accelerated tempo. Consonant doubling of the type seen in [ɛ́ggó], "bell", is also a strictly temporal phenomenon: in ceremonious speech it can only be pronounced [ɛ́gógó and in slurred speech [ɛ́gó].

A representative example of steady phoneme change induced by consecutiv tempo changes is the word ìhìnrìín, "nine", here presented in its seven temporal varieties:

1	(ceremonious)	ìhìnbhìnrìín
2	(deliberate)	ìhìn ìnrìín
3	(slow)	ìhììnrìín
4	(ordinary)	ìhìnrìín
5	(rapid)	ìhìn ín
6	(hurried)	ìhìín
7	(slurred)	ìhín

A less steady but, if anything, more dramatic series of phoneme shifts is exhibited by the following temporal allologs of the word rìán/nìán, "now"

1 rlìrlán
2 rlì án
3 rlìán or nì án
4 rìán or nìán
5 ryàán or nìaán
6 nyàán
7 yàán

(The rules governing these rather startling mutations are presented below in the section on Phonotactics.)

An almost equally striking example of temporal metamorphosis is the contrast between the maximal (ceremonious) and the minimal (slurred) forms of the word òhóghē̄, "a lie": its ceremonious form, òhóòghòrlì, contains, by a minimal reckoning, 13 phonemes; while its slurred form, óghē̄, contains, by the same rackoning, only 5 phonemes.

In some cases, decelerated variants of utterances are so abridged as to be all but unrecognizable to anyone who thinks in primarily morphological terms. Such an utterance is the bound verb-phrase ghá ì-, "don't", whose hurried-speech alternant is a monophonemic ẹ́-.

From the standpoint of speech-economy, the obvious advantage of slurred speech is its brevity -- a considerable convenience to the speaker. Conversely, however, its equally obvious disadvantage is its ambiguity -- an equivalent inconvenience to the hearer. In Bini, for example, the slurred-speech form ọ̀bá may have any one of five different meanings: "he watches", "he watched", "he watches her", "he watched her", or "he watched you". But in decelerated speech, each of these meanings has a discrete form of its own, these five forms being, in order: ọ̀bá, ọ̀bárlè, ọ̀bàárlè, ọ̀báàrlé, and ọ̀báàrlùẹ́. In the case of noun compounds, some of these ambiguities are, if anything, even more hopeless. Examples of such slurred-speech homophonies are ágá, which can mean either "a chair" or -- when from ágáágá -- "a roomful of chairs"; and úkì, which can mean either "the moon" or -- when from úhùúkì -- "sinister influence" (literally, "the time of the moon").

Considering such ambiguities, it may be asked why anyone ever speaks Bini at this tempo -- or, more to the point, why anyone listens when others speak this way. The answer, of course, is that clarity of context and closeness of rapport often make slurred discourses quite as unambiguous as any others; whereupon, in Bini as in English, young speakers quite readily launch into them.

Not all types of phonemes are equally susceptible to alteration by changes in speech-tempo. The order of susceptibility (beginning with the most susceptible and ending with the most resistant) is as follows:

1 disjunctures
2 tones
3 vowels
4 consonants
5 qualities

Disjunctures, in fact, are very difficult to define at all independentl of tempo. No minimal contrasts between disjunctures can be found that will hold at all tempos. Thus, the pair ágá, "chair", and á'gá, "Go ahead and serve", while audibly distinct in ceremonious and deliberate speech, become homophonous at all faster tempos.

The phonemic tone-changes that result from shifts in tempo are striking Generally speaking, one can say that the tonal inventory, which in ceremonious speech is a modest two (top and low: that is, primary tones only), swells to a maximal six in ordinary speech, but then contracts again in slurred speech to four (all tertiary tones being merged with secondary).[2]

Optimal illustrations of this tonal "pulsation" are provided by trisyllabic "glide-nouns" (i.e., nouns containing intra-syllabic tone-sequences. A complete inventory of such noun-types follows in table 8:

---

[2] Reasons for the tonal expansion at tempos 2 and 3 are given below, under Metaphonemes.

Table 8: TEMPORAL TONEME CHANGES
(Illustrated by Trisyllabic Nouns)

number	syllabic tonality	word at Tempo 1	translation	same word at Tempo 4	same word at Tempo 7
1	TTF[1]	ákẹ́nzú͡à	(a king's name)	ákẹ́nzú͡à	ákẹ́nzwá
2	TTR	ólákpàá	policeman	ólákpa̍	ólákpa̍
3	TLF	óghòdú͡à	The Almighty	ó'òdú͡à	ódwá ?
4	TLR	ìgìorlùá	water-yam	ìgìo'á	ìjá ?
5	TFT	ékú͡àbọ́	upper arm	ékúabọ̍	ékwábọ̍
6	TFL	úgbá͡àrlò	eyebrow	úgbá'ō	úgbá ?
7	TFF	ìkhî͡ìnbhî͡ìn?[2]	Newbouldia laevis(a tree)	ìkhíbhììn	ìkhín ?
8	TFR	ógbéèsọ̀ọ́n ?	(A Bini village)	ógbésọ̋n	ógbésọ̍n
9	TRT	úhùúkpá	suddenness	úhu̍kpá	úkpa̍ ?
10	TRL	úhùúkì	evil effect	úhukì	úkì ?
11	TRF	àkòóbìẹ̀ ?	(a fertility figurine)	ákóbìẹ̀	ákóbyẹ́
12	TRR	átèétòé	grasshopper	áte̍te̍	átə̍ ?
13	LTF	èsìasìò	Bristlebill (a bird)	èsìasìò	èsháshó
14	LTR	ìzákèé	Jekri dog-fish	ìzáke̍	ìzáke̍
15	LLF	ètàfìà	meddler	ètàfìà	ètàfyá
16	LLR	òmùhẹ̀ẹ́n	a beginning	òmùhẹ̀ẹ́n	òmwẹ́n ?
17	LFT	àkú͡ọ̀mọ́ ?	womb	àkúọmọ̍	àkwọ́mọ̍
18	LFL	èsọ́ọ̀sì	church	èsọ́sī	ẹ́sī ?
19	LFF	èbá͡ànbá͡àn ?	the present time	èbába̍àn	èbán
20	LFR	èkpó͡òkpó͡ò ?	a bullet	èkpókpő	èkpó ?
21	LRT	èsèékú	a troll	èsèékú	èsẹ́kú
22	LRL	ìbìẹ́kà	children	ìbìékà	ìbyẹ́kà
23	LRF	òrìọ́khọ́ọ̀?	a storm	òrìọ́khọ́ọ̀?	òryọ́khọ́
24	LRR	àlẹ̀ẹ́fèé ?	an escape	àlẹ́fe̍	àlẹ́fe̍

---

[1] T = top tone; L = low tone; F = falling tone-sequence (a top-to-low glide); R = rising-tone-sequence (a low-to-top glide).

[2] ? means that this particular pronunciation was unknown to at least one informant.

Nor is it only on the phonemic level that Bini tones show temporal perturbations. Allophonic tone-level is equally affected, although somewhat more consistently, since there is a steady narrowing of the tone-range from a maximum of six to a minimum of three tone-levels, as one moves (in utterances of less than four syllables) from decelerated to accelerated tempo. This development is illustrated in table 9:

Table 9: TEMPO AND TONE-LEVEL

item	translation	tempo 3	tempo 7
ẹ̀dẹ́	day	45-2	4-3
ádá	ceremonial sword	1-1	3-3
áde̍	who falls?	1-2	2-3
áde̎	who's coming?	1-3	2-3
nádẹ̀	the buyer	1-45	3-45
nódẹ̄	yesterday	1-5	3-4
nóghe̿	the lie	1-6	3-4
ólódò	door-frame	1-1 -45	3-3 -45
ẹ́lẹ́dẹ̄	pig	1-1 -5	3-3 -4
úhu̍kpá	once	.1-2 -2	2-3 -3
óbo̍bò	a flower	1-2 -45	2-3 -45
ȋkẹ̀kẹ́	bicycle	1-45-2	2-45-4
úkòkò	a pipe	1-45-56	3-45-5
èdèdé	old woman	45-56-2	4-4 -3

Some of the phonemic changes in segmentals that accompany changes in tempo have already been illustrated above in the section on Phonemes. Others are illustrated below in the section on Phonotactics.

Concerning qualitative phonemes (orality and nasality), all that need be said is that they show no readily observable temporal changes -- with the exception of the unstable co-occurrents en and on, which are treated below under Phonotactics.

The three sequential phoneme-classes -- disjunctures, vowels, and consonants -- show a temporal relation to each other which requires special mention: In a very few cases, a phoneme which appears as a consonant in decelerated speech may be replaced by a disjuncture in ordinary speech and then by a vowel in accelerated speech. Such a taxonomically protean phoneme is the middle sequential in the following series:

Tempo 1 : ìghá- ("I shall")
Tempo 4 : ì á-
Tempo 7 : yàá-

The term "phonic stability" as we here use it is exclusively temporal in reference and means "resistance to change induced by tempo". We have already noted[3] that some phonemes differ in degree of stability. We should add here that the same is true of phoneme-sequences and syllable-sequences.

The result is that, while some words in Bini change almost beyond recognition with tempo shifts, others remain unchanged in form no matter how quickly or slowly they are spoken. Such words are the following twelve nouns, all of which also illustrate primary tone sequences. (In the tonotypic description to the left of the nouns, T represents top tone and L low tone:)

TT	ẹ́dé, "crown"
TL	ésàn, "Ishan"
LT	ẹ̀dó, "Benin"
LL	àmèn, "water"
TTT	ẹ́kété, "throne"
TTL	ékítà, "dog"

---

[3] Below, under Phonemes.

TLL	íbàtà, "shoe"
LTT	òkútá, "stone"
LTL	àdésẹ̀, "middle"
LLT	èfàdá, "missionary"
LLL	ìkèbè, "buttocks"

However, since most phonic stability is not so absolute as such items might seem to imply, we shall illustrate the six degrees of relative stability in terms of the numbers of different speech-tempos at which phonemes, sequences, and co-occurrents remain unchanged. Table 10, below, gives items exemplifying these six degrees. It also illustrates two levels of absolute stability, which might be termed "zero" stability and "total" stability, respectively:

Table 10: (see next page)

Table 10: PHONEMIC STABILITY IN EUPHONIC UTTERANCES

number of tempos at which they occur	phonemes	sequences	co-occurrents
0[1]	η[2]; θ[3]; etc.	Cc̣[4]; CD	C[5], C̃[6]; D, D̃
1	c, j, sh, zh; gyh, gwh	vṿ̱v̱[7], vṿ̱v̱, vṿṿ kpV̯[8], gbV̯, ghV̯	ẽ, õ
2	e, o D_2		
3		CS[10] vṿ, vv̱ṿ, vṿṿ	
4		v́v, v́v; vṿ̱v̱	
5	V, V	v́v, v́ṽ	
6	V, Ṽ i, u (y, w)[11] D_1	VV	
7[12]	15Cs, 7Vs, 2Ts; 1 (N)[13], 1D(D_4)	CV	V́, V̀ Ṽ

---

[1] Zero stability, of course, is equivalent to non-occurrence.

[2] η here represents any common allophone which never acquires phonemic status.

[3] θ here represents any foreign phoneme which is never incorporated into the Bini phonemic inventory.

[4] A dot under a symbol means "different from the preceding phoneme".

[5] x over a phoneme means "co-occurring with either top or low tone".

[6] ~ over a phoneme means "nasalized".

[7] A macron under a symbol means "identical with the preceding phoneme".

(over)

69A

---

[8] An inverted breve under a vowel means "closer than the preceding vowel and tending to become semi-vocalic at higher tempos".

[9] D_1 = minimal disjuncture (break) D_3 = major disjuncture (pause)
D_2 = minor disjuncture (gap) D_4 = maximal disjuncture (stop)

[10] S means "semi-vowel".

[11] Depending on which symbols one chooses to eliminate when high vowels and semi-vowels merge in slurred speech.

[12] Maximal stability may be called invariability. If one wishes to subgroup intermediate degrees of stability, one can call occurrences 1 and 2 "relative instability", occurrences 3-4 "semi-stability", and occurrences 5-6 "relative stability".

[13] N means "nasality".

Section 9: Phonotactics

Phonotactics is the study of sound-sequences. Unless some explicit statement to the contrary is made, it is to be assumed that the sounds whose sequences are being studied are phonemes. Phonotactic rules are statements about which phoneme-sequences do or do not occur in a language.

Many of the phonotactic rules of Bini have already been implicitly or even explicitly stated in the sections on Syllables and Tempo. Nonetheless, we shall restate them here, together with other rules not yet broached. This re-statement is particularly desirable in view of the fact that phonotactic rules may be either positively or negatively stated and that, thus far, we have tended to state them only in positive terms. In the following paragraphs, we shall state them in primarily negative terms -- that is, in terms of what might be called "forbidden occurrences".

Phoneme sequences which are non-occurrent in Bini at all speech-tempos are:

1. Consonant plus consonant. Thus, although [óssī] may occasionally be heard for "gun", it can only be interpreted, phonemically speaking, as ósīsī.

2. Consonant plus audible disjuncture. Even on the allophonic level, such sequences do not seem to occur. The only disjuncture which may follow a consonant is the minimal disjuncture, or break, which acts to prevent the pre-vocalic sequence sl, for example, from coalescing into the unit phoneme sh.

3. Vowel plus vowel plus vowel plus vowel (i.e., a four-vowel sequence, or tetraphthong). There is no tempo at which a triphthong and a single vowel, for example, can merge without loss of at least one vowel. Thus,

even at tempo 4, in which diphthongs and single vowels may merge to form unstable triphthongs, the word ẹ̀gùaè, "palace", loses its final *e* in the compound ẹ̀gùaẹ̀dó, "palace of Benin".

4. Audible disjuncture plus nasal vowel. Although this prohibition may possibly be morphological rather than phonic in nature, it is consistent at all tempos. *ángá, for example, instead of nágá, "the chair", is never heard, even in hurried speech.

5. Disjuncture plus disjuncture. This "rule", of course, is largely a matter of fiat; since it is theoretically possible, instead of saying that Bini has four phonemic disjunctures, to say rather that it has only one disjuncture, which may be doubled, trebled, or quadrupled to give the auditory effects which we have here termed "gap", "pause", and "stop", respectively.

6. Audible disjuncture plus *up* or *pu* plus vowel. This rather bizarre prohibition leads one to suspect either coincidence, careless analysis, or incompletely phonemic status on the part of the consonant *p*. Of these three, the third is the most likely explanation: To begin with, *p* is, in purely statistical terms, the rarest of all Bini segmentals, occurring in only about 30 words. Moreover, all of these words can be classified either as loan-words (like ẹ́pîpá, "keg", from Portuguese pipa) or as phonesthemes (like pàpàapà, "smooth and flat"). In fact, some of them, like èplẹ́zọ̀, "pleasure vehicle" (from English pleasure) or pr̀rr (the sound of beating wings), violate normal phonotactic rules quite aside from their possession or non-possession of the *p*- phoneme.

All things considered, however, it still seems best to treat *p* as a Bini phoneme rather than as a xenophone or paraphone, and this for several reasons: First comes the "taxiphonamic" consideration, or argument from pattern. Just as the voiced stops *d*, *g*, and *gb* have voiceless counterparts in Bini -- viz., *t*, *k*, and *kp* -- so may the voiced stop *b* be expected to have a voiceless counterpart. And Bini *p* fulfills this expectation, phonetically as well as pattern-wise. Furthermore, the number of words containing *p* is constantly growing in Bini, so that even if *p* was recently non-phonemic in the language, it seems almost certain that it will soon be fully phonemic.

In sum, then, we are probably best advised to accept Bini *p* as a full-fledged phoneme, with the phonotactic qualification that it is more restricted in frequency and position of occurrence than are most other stops.

Next to the phonemicization of linguals, the most difficult -- not to say exasperating -- task for the Bini phonologist is predicting the outcome of vowel confluence. Since all Bini words end with vowels and half of them begin with vowels as well, vowels are continually coming into contact with one another and changing, being changed, or both. The sequence *i* + *a*, for example, may, theoretically at least, have as many as sixteen confluent outcomes: in decelerated speech, *ii*, *ie*, *iẹ*, *ia*, *ea*, *ẹa*, and *aa* as well as *ee* and *ẹẹ*; and, in accelerated speech, *i*, *e*, *ẹ*, and *a* as well as *ye*, *yẹ*, and *ya*. About the only thing we may feel reasonably sure of is that the outcome will under no circumstances be a back vowel.

The chief reason for the plethora of possibilities in vowel confluence is that more than purely phonic factors influence its outcome. We must also reckon with morphological considerations, such as the fact that certain word-classes normally exhibit phonic "dominance"[1] over other classes; and with semantic interference, chiefly the effort to prevent ambiguity by avoiding homophony.

---

[1] For an explanation of "phonic dominance", see below, under Metaphonemes

Phonically "normal" outcomes of vowel encounters are usually found in verbal nouns and in intra-word sequences (that is, sequences of affix + affix or syllable + syllable within a word). These normal outcomes may be summarized as follows:

1. Falling diphthongs coalesce into a lengthened (i.e., doubled) version of a vowel intermediate in height (or tongue-position) to the two vowels originally comprising the diphthong.

E.g., (in hurried speech) ékhẹẹ "sand"<ékhà'è.[2]

2. Rising diphthongs similarly coalesce except when the first vowel is close, whereupon it becomes a semi-vowel.

E.G., áhwa̍, "hawk"<áhùá <áhò'á

3. When exact intermediation is impossible, low is preferred to high and back to front:

E.G., àtẹ̀kpìn (a hard-skinned snake)<àtà'ìkpìn;
ẹ̀kúgbó (a Bini village)<èkí'úgbó

3a. When back and low are in conflict, low predominates:

E.g., kpàá, "to get up"<kpà'ọ́

3b. The sole exception to this rule is the sequence ui which, after velar consonants, becomes wi rather than uu:

E.g., ègwí, "tortoise"<ègú'í

3c. The resultant of these two rules is a serial hierarchy of what might be called "confluent dominance". The order of this dominance, reading from maximal to minimal, is:

a, ọ, ẹ, o, e, u, i

---

[2] At tempo 1, this word ends in -arle, at tempos 2-4 in -a'e, at tempo 5 in -ae, at tempo 6 in -ẹẹ, and at tempo 7 in ẹ. Its "normal" (i.e., temporally predominant) form must therefore be cited as ékhà'è.

4. When nasal and oral vowels are juxtaposed, the resultant blend becomes uniformly nasal:

E.g., ọ̀mànkhè, "potter"< man, "to mold" + àkhé, "pot"

5. Tone has no effect on vowel color in such confluences.

Grammatical interference with these rules of vowel coalescence can be classified into two types: pre-dominance and post-dominance.

Pre-dominance is assimilation of the second vowel to the first. It usually occurs in sequences of base + suffix, noun + verb, noun + adverb, verb + adverb, particle + adverb, noun + particle, noun + numeral, or exclamative + noun.

Examples are:

ọ̀bá, "he watched"< ọ̀báa < ọ̀báà < òbáẹ̀ < ọ̀báè < ọ̀bá'è < ọ̀bárlè

èbéꜜnọ̀n, "It's a book"< èbé, "book" + -ọ̀nọ́n, "it is"

ọ̀bhánwẹ̈ẹn, "thin man"< ọ̀bhánrlè, "person" + Àwẹ́nrlẹ́n, "narrow"

ọ̀fóꜜfẹẹ, "It's all done"< fo, "to finish" + Àfẹẹrlẹ́, "wholly"

èbhìnnéꜜmósée, "a beauty"< èbhìnrlè, "thing" + èné, "the" + Àmósée, "beautiful'

úhꜜùkpá, "once"< úhù-, "Occasion" + ọ́kpá, "one"

èkó, "Hi, pal!"< ée, "greetings" + òkó, "age-mate"

Post-dominance is assimilation of the first vowel to the second. It usually occurs in sequences of noun + noun, verb + noun, verb + emphatic pronoun, or clitic + phrase.

Examples are:

òwéꜜbè, "library"< òwá, "house" + èbé, "book"

bàwá, "Watch the dog"< ba, "to watch" + àwá, "a dog"

bǐmà, "Watch us"< ba, "to watch" + ǐmà, "we"

tọ́ꜜdè, "It does fall!"< tÁ- (intensive phrase prefix) + ọ̀dé, "he falls"

Semantic interference with the rules of normal vowel confluence usually takes the form of "homophony avoidance" -- that is, a more or less conscious attempt to prevent semantic ambiguity by not allowing two already similar utterances to become phonically identical, as they otherwise would, especially in accelerated speech.

Examples of this process are:

dọ̀ọ́'è, "Tie it"<dee, "to tie" + ọ́rlè, "him"
BUT dìọ́'è, "Approach it"<dee, "to come" + ọ́rlè, "him"

Stating the matter more formulaically, we can say that, of any two potentially homophonous verb phrases which contain rising diphthongs, one will tend (in accelerated speech) to become a monophthong and the other a semivowel-plus-vowel sequence.

Thus,

$\underline{\text{ia}}$ and $\underline{\text{ia}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{ea}}$ and $\underline{\text{ia}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{ẹa}}$ and $\underline{\text{ia}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{aa}}$ and $\underline{\text{ia}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{ea}}$ and $\underline{\text{ea}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{ẹa}}$ and $\underline{\text{ea}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{aa}}$ and $\underline{\text{ea}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{ẹa}}$ and $\underline{\text{ẹa}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively
$\underline{\text{aa}}$ and $\underline{\text{ẹa}}$ will become $\underline{\text{a}}$ and $\underline{\text{ya}}$ respectively

And so on. That $\underline{\text{is}}$, $\underline{\text{io}}$, $\underline{\text{ua}}$, $\underline{\text{ue}}$, etc., will all tend to follow the same pattern of heterophonic differentiation from potentially homophonous vowel sequences.

In practice, however, prediction of the resultants of vowel confluence is not as easy as even these complicated statements would make it seem. For not only do different tempos produce striking variabilities, but so do dialects. And, to make things worse, this is one of the phonic areas in which idiolectal (i.e., private or personal) and even sub-idiolectal divergencies are most in evidence.

Moreover, some forms or series of forms seem either to fall or to fluctuate between the categories we have just described, with the result that they can be interpreted in more than one way. Thus, for example, the bound verb-morpheme sequences i-Hi-, u-Hi-, ọ-Hi-, and a-Hi- (meaning, "I don't", "you don't", "he doesn't", and "one doesn't", respectively) have, at ordinary tempo, the forms ii-, uu-, ẹẹ-, and ai-, respectively. These forms are most readily explained by assuming phonic "normalcy", with two provisos: first, that e̤e- shows low-over-high dominance; and second, that ai- shows semantic interference (without which it, too, would become e̤e and so be homophonous with the form paradigmatically preceding it). This interpretation is strengthened by the fact that ọ-Hi-, among older speakers, still shows an intermediative diphthong form ẹe- at slow tempo; and that ai- does actually become ẹ- in slurred tempo, when it is no longer audibly distinct from ọ-Hi-. However, one can never be sure that the form uu- does not show total morphological pre-dominance, and the form e̤e-, at least among younger speakers, partial pre-dominance.

Vowel assimilation, though most evident in situations of direct vowel-contact may also occur across syllable boundaries. It is most often seen in combinations of base with affix, but it may also occur in combinations of either of these with "weak" bases (that is, words which are in process of losing their "privilege of free occurrence" and so becoming affixes themselves).

This assimilation can be either partial or total. An example of partial assimilation is:

gbalọ, "to tie (many objects) together"<gba, "to tie" + -lo "an iterative suffix)

An example of total assimilation is:

ọ̀wììrlì, "It's lost" wii, "to get lost" + -rle (the perfective suffix)

In some cases, a single affix seems to obey different assimilational principles in different environments. Thus, the same iterative suffix -lo cited above shows complete assimilation of the pre-dominant type after e̲, ẹ̲, and ọ̲ (as in dele, "to fall in succession", dẹlẹ, "to buy in batches", and zolo, "to extract one by one") but complete resistance to assimilation after i̲, u̲, and o̲ (as in filo, "to shoot many game animals", bunnɔ, "to get all wrinkled", and kpolo, "to sweep up"), in addition to the partially pre-dominant assimilation, already mentioned, which occurs after a̲. No single formula seems to embrace all of these patterns.

In other cases the variability is even more unpredictable, in that it has no observable relation whatever to phonic environment. Thus the extensional verb suffix -ghe sometimes remains unchanged, as in fieghe, "to swing"; sometimes shows partial alteration, as in yinghẹn, "to be scrawny" (where the lowering, however, is due to nasalization rather than vocalic dominance); and sometimes assimilates completely to the stem-vowel, as in tighi, "to twist". And the majority of extensional suffixes exhibit similar assimilational unpredictability.

A special type of assimilation, which occurs most commonly within words, is front-to-back assimilation.

Examples are:

ùrhúnbhùnrhún, "nakedness",<ùrhúnbhìnrhún

ékúọmọ́, "brown bush rat"<ékúẹmọ́

In some cases, this front-to-back vowel assimilation may be caused by contiguous consonants rather than by near-by vowels. Such assimilation is common in verb-plus-pronoun or noun-plus-pronoun phrases as well as within words.

Examples are:

gùbhẹ́n-, "let me"< gi, "allow" + -bhẹ́n, "me"
ọ́ghòbhẹ́n, "mine"< ọ́ghé, "possession" + -bhẹ́n, "me"
bo̤o̤, "to take care of"< be̤e̤

In a few cases, front-to-back vowel assimilation may be ascribed either to the influence of near-by vowels, to that of near-by consonants, or -- perhaps -- to both acting in concert.

An example is:

fuọfua, "to be white"< fua-, "white" (cf. ùfúa, "white yam")

Other irregular verb reduplications are probably best explained as due to analogous assimilations, although here consonants do not seem to play any contributory role:

rierieẹ, "to turn on the spit"< riẹ-, "turn" (cf. werieẹ, "to change")
hihiẹ, "to upset"< hiẹ-, "sink" (cf. hiẹhlẹ, "to subside")
hihia, "to rush"< hia-, "hurry" (cf. hiaa, "to strive")

Rules governing the confluence of three or four vowels are exactly the same as those governing the confluence of two. The only difference is that it takes longer for tetraphthongs to become monophthongized than for triphthongs, and longer for triphthongs than for diphthongs. Putting it another way, tetraphthongs become triphthongs before they become diphthongs and diphthongs before they become monophthongs.

Thus, for example, from the verb-noun phrase riaa, "to take", + ìkhì, "vengeance", we get the following seven temporal variants of the verbal noun meaning "revenge":

1 ìrìa'à'ìkhì
2 ìrìaàikhì
3 ìrìaìkhì
4 ìrìẹèkhì
5 ìrìẹẹkhì
6 ìrìẹkhì
7 ìryẹ̀khì

A triphthong in word-final position receives analogous treatment (although in this case, of course, morphic pre-dominance replaces phonic intermediation, since the second of the two morphemes involved in the confluence is an affix):

1 òrhúanrlè, "an in-law"
2 òrhúan'è
3 òrhúaèn
4 òrhúaẹ̀n
5 òrhúaàn
6 òrhúan
7 òrhwán

Before leaving the subject of vowel confluence, we ought perhaps to reiterate the importance of time-factors in its reflexes. That is, not only must we remember that one morpheme-sequence may have very different forms at different speech-tempos; but we must also remember that, although such sequences as *aa* and *ai* both may yield *a* as ultimate reflexes, it takes *ai* four times as long to reach this stage as it does *aa*. Thus, for example, if we have *a* + *a* and *a* + *i* at tempo 1, we will get a monophthong from the first of these sequences at tempo 3, while we will not get one from the second sequence till tempo 6. This fact can be schematically stated as follows:

Tempo 2	aa,	ae̩,	ae,	ai
Tempo 3	a ,	aa,	ae̩,	ae
Tempo 4		a ,	aa,	ae̩
Tempo 5			a ,	aa
Tempo 6				a

In each case, the development of the vowel-sequence in question can be traced by reading vertically downward for increasing acceleration and its concomitant, increasing assimilation. (Needless to say, precisely the same principle holds, no matter what the sequence of vowels is or what the type of assimilation is. In any case, dissimilar vowels will take longer to assimilate than will similar vowels.)

Although, as we noted in an earlier section, phonemic length as such does not exist in Bini, something very similar to it does -- viz., vowel doubling. And, at certain tempos, minimal pairs may be heard which are distinguished exclusively by this doubling. A good example of this quantitative contrast is the noun ùkpó, "year", vis-a-vis the noun ùkpóo, "a cowrie". I should, however, be kept clearly in mind that all such contrasts are temporally unstable, holding good for only one to three tempos each. In the above case, for example, the contrast is good only for intermediate tempo. At decelerated tempo the word "cowrie" is ùkpóghó, and at acclerated tempo ùkpó.

Much the same reservation must be made about quantitative tone-contrast -- that is, about tonal contrasts based on differences in sequence-length rather than on differences in pitch alone. At some tempos, for example, one can have three tonemes in one syllable, though such a situation is always highly unstable. Thus, at tempo 5 (rapid speech), there is a clear near-minimal contrast between the bound clauses -nọ̀mâàn, "which she baked", and -nọ̀màâàn, "which was good". At any faster tempo, however, the two clauses become homophonous. A similar contrast -- in this case not involving vowel-length -- can be drawn between the free clauses ọ̀rọ́ọ̀ọ́, "It's there" (from re, "to inhabit", + ọ̀rlé, "him") and ọ̀rọ̀ọ́ọ̀, "She stirs it" (from rọọ, "to stir" + ọ́rlè,[3] "him"). But here, too, the contrast is temporally unstable, even if less so than above: at tempo 7 (slurred speech) both fall together as ọ̀rọ́.

As regards tone generally, the most important phonotactic restriction is that derived tones may never begin utterances. In positive terms, all utterances begin with either top or low tone. Thus, no word in isolation will ever begin with a secondary or tertiary tone.

A second restriction is that no derived nether tone may follow any other nether tone. In positive terms, flat and bottom tone occur only after an upper tone.

Because of the restrictions on the occurrence of derived tones, one can never have an ascending "run" of more than two tones in succession in Bini without the intervention of a long disjuncture. But Bini does exhibit descending runs of indefinite length; and these runs may be either phonemic or phonetic in nature.

Thus, a maximal tonal ascent in Bini is the type which occurs in èbé, "leaf", a sequence such as *èbe̍bé being tonotactically prohibited. But five mid tones in a row are quite permissible, as in the sentence nébe̍be̍hi̍ade̍gbo̍tọ̄, "All the foliage fell to the ground", which has the tone-level pattern 1-2-3-4-5-6-9. On a sub-phonemic level of analysis, a still longer downward run is shown by the tonemically level adverb zìghàrlàkpàzìghàrlàkpà, "like a cripple", which exhibits the allophonic tone-level pattern 4-5-6-7-8-9-10-11/12.

---

[3] For an explanation of the tonal caprices of the pronoun here, see below, under Verbs.

As regards vowel quality, orality is wholly unrestricted in occurrence (a fact which can be used to argue against its being treated as a phoneme at all). Nasality, on the other hand, is subject to three restrictions. The first of these is that it does not occur with initial vowels in any words except a few exclamatives, such as ẹ́n, "yes". This restriction, however, can be interpreted in either of two quite different ways: the first of these is to say that the restriction is morphological in nature, applying only (1) to pronouns, nouns, verbs, adverbs, and particles, but not to exclamatives. The second, which the author prefers, is to say that it is phonological in nature and applies to all parts of speech, but is not operative in dysphonic utterances,[4] such as a handful of exclamatives.

The second restriction on the occurrence of nasal vowels is temporal. Except in decelerated speech, no vowel may occur nasalized unless the vowel of the syllable following it in the same word is also nasalized. Thus, while ọ̀màánrlè, "It was good", is acceptable in ceremonious speech, in intermediate speech it must become ọ̀màánrlèn, ọ̀màárlẹ̀n, or ọ̀màáẹ̀n; and in hurried speech it can only be ọ̀máàn.

Furthermore, in accelerated speech, at least in some dialects, a new restriction appears, viz., that a nasalized vowel may appear only in the last syllable of any word. Thus, in these dialects, the verb zẹnzẹn, "to cram", becomes zẹzẹn in accelerated speech.

---

[4] For a definition of dysphony, see below, under Phonic Domains.

The third and last phonotactic restriction on nasal vowels has to do with co-occurrence. The co-occurrents en and on, while they are heard, are highly unstable, seldom persisting through more than one speech-tempo. Thus, the native verbal noun meaning "scissors"[5] (from gbẹn, "to cut", + ètó, "hair") is ùgbẹ̀n'ètò only in ceremonious speech. In deliberate speech it becomes ùgbẹ̀entò and in slow speech ùgbèntò. Thereafter it assumes a stable form, which, however, differs according to dialect. In urban Bini it loses its nasality and becomes ùgbètò; while in rural Bini it lowers its vowel and becomes ùgbẹ̀ntò.[6] (Interestingly enough, this contrast is the only firm example of regional dialect-difference which the author has been able to establish.) As we would expect, this process is the same for o as for e, ìtònkùn, "timber-measurement", becoming ìtòkùn in Benin City and ìtọ̀nkùn elsewhere.

Section 10: Sporadic Variation

Most linguistic hand-books tend to deal with sporadic or "unconditioned sound-variations either by omitting items which exhibit them or by relegating them to foot-notes as embarrassing blemishes on the clarity of their presentation. Actually, however, even such seemingly disorderly phonic phenomena have an order of their own -- at least in the sense that statistical generalizations can be made about them. Nor are they as wholly unpredictable as they are sometimes made out to be: systematic analysis of phonic categories makes it possible to predict with some assurance that some alternations will occur frequently, some infrequently, and others not at all. (If an alternation occurs, or may occur, quite without restriction, it is called free allophonic variation instead. Such variation is dealt with above, under Phonemes.)

---

[5] A commoner term for "scissors" is the English loan-word èsízọ̄sì.

[6] Evidently rural Bini does not require the nasalization of final syllables after preceding nasal syllables.

Moreover, as one might guess, there is a considerable, though always skewed, correlation between sporadic variation on the one hand and conditional monophonemicity (whether dialectal or temporal) on the other. Thus, it comes as no surprise, once we know the ambiguous phonemic relation of *r* to *rl*, for example, to learn that, even for those speakers who keep them phonemically distinct, these two linguals are in frequent sporadic variation with one another. And the converse is equally true: a study of relative frequencies of sporadic variation can often help us to determine the phonemic or allophonic status and interrelationship of problematic Bini speech-sounds.

Among vowels, frequency of sporadic variation is a rather consistent function of what may be called "phonemic distance". If we revert to the vowel-diagram we used above (in the section on Segmentals), we will see that any one vowel may have a distance from any other vowel of 1, 2, or 3 phonemic "jumps".

i u
e o
ẹ ọ
a

Thus, i, for example, is one jump away from *e* and *u*; two jumps from *ẹ* and *o*; and three jumps from *a* and *ọ*.

As it happens, there are also discriminable sub-frequencies within each of the "jump" categories. Taking *i* again, we find that it varies most frequently with *u*; next most frequently with *e*; next with *ẹ*; next with *o*; next with *ọ*; and least frequently with *a*. And substantially the same situation obtains with each of the other vowels, horizontally adjacent vowels being their most frequent and diagonally distant vowels their least frequent alternants.

Back-front alternation is easily illustrated with short and common words:

gi or gu, "to allow"
dee or doo, "to approach"
zẹẹ or zọọ, "to propitiate"

One-jump high-low alternation is almost as readily illustrated:

déghè or déghì, "whether"
tete or tẹtẹ, "to hoard"
guẹẹ or guaa, "to know how"
ólákpa̍ or ólọ́kpa̍, "policeman"
íkhìabhọ̀ or íkhìabhò, "ocro"
ọ́ghòbhẹ́n or ọ́ghùbhẹ́n, "my own"

Vertical two-jump alternation is considerably less common:

òtén or òtín-, "kinsman"
yuun or yọọn, "to glow"

Diagonal two-jump alternation is still rarer. It tends to occur only among "echoics" -- that is, words containing internal sound-repetitions or phonesthetic effects. An echoic noun which illustrates this type of alternation is:

èbẹ́gágó or èbógógó, "Carapa procera" (a tree whose leaves are used for roof-thatching)

An adverbial example of vertical two-jump alternation is:

rlághórlághó or rlóghórlóghó, "bright blue"

An adverbial example of vertical three-jump alternation is:

vàghàvàghà or vùghàvùghà, "flappety-flap" (a description of the flight of large and heavy birds)

A parellel example of diagonal three-jump alternation is:

kpẹ̀kùrlù or kpùkùrlù, "short in stature"

Alternation between oral and nasal vowels is common. E.g.:

ti or tin, "to boil"
fuaa or fuaan, "to perish"
kuu or kuun, "to splash"

Mid-low nasal vowels alternate equally often with mid-low and with mid-high oral vowels. Thus:

zẹ́ẹ or zẹ́ẹn, "exactly"
(but èsáàgìe or èsáàgìẹn, "blood")

An especially high frequency of variation appears among nominal prefixes, where we may find not only two but three or even four vowels alternating with one another. E.g.,

2: ẹ́bè or ọ́bè, "danger"
3: èsáàrlà, àsáàrlà, or ọ̀sáàrlà, "saw"
4: ọ́rlè, ẹ́rlè, érlè, or ìrlẹ̀n, "he"

In fact, such multiple variation seems hard to account for in purely phonic terms. The chances are that most, if not all, of these alternations are morphemic rather than phonemic in nature.

It is of similarly dubious utility to speak of patterns of sound variation in loan-words (that is words of known foreign origin) and in place-names (which are likely also to be of foreign origin, though the specific source is often hard to pin-point).

The alternation seen in ùsápẹ́lẹ́ or ùsákpélé (used by younger and older speakers, respectively, for the Warri town of Sapele) may reflect no real variability in Bini but a difference, say, between Jekri and Urhobo names for the same city.

The alternation between èwíndā and èwíndō, "window", reflects dialectal or temporal differences between English pronunciations rather than anything intrinsic to Bini.

Much the same observation can be made of èsábū or èsọ́bū, "shop", which may be explained in terms either of Southern versus Midland English or of Bini hesitancy over whether to select a or ọ to represent the English "short o".

To complicate the picture further, many of the phonesthetic words referred to above are probably themselves of foreign origin. The lack of a noun prefix on the first member of the alternant pair lúbàsérlé or òlógbòsẹ́rẹ́, "royal anklets", for example, would suggest this.

Among Bini consonants, alternations comparable to those among vowels may be observed. And here, too, frequency of alternation varies directly with phonetic proximity. Consonant pairs differing in manner alone, voice alone, or position alone may be said to be one step apart. Pairs differing in two of these respects may be said to be two steps apart.

If we take kh as our point of consonantal departure, we will find it taking part in the following alternations:

(1) voice only - óghì'àn or òghì'àn, "enemy"
(1) manner only - ùkhù or ùkù, "inheritance"
(1) position only - khọọn or họọn, "to be needed"

kh does not take part in many two-step alternations. A single manner-and-position alternation will have to suffice us by way of illustration:

àkhúànbhàn or àrhúànbhàn (a traditional Bini deity)

Two-step alternations involving changes in manner and voice seem to occur only among echoics. An example is:

ùdùbhùndìn or ùdùbhùnrhìn, "suddenness"

Two-step alternations involving both voice and position are also hard to illustrate. A questionable verbal example is:

hawa or ghagha, "to be agitated"

Rarest of all such alternations, of course, is the three-step alternation involving changes in voice, in manner, and in position. One of the few clear-cut examples of it is:

èhá or -érlà, "three"

Almost equally rare are alternations involving changes in the number of phonemes. An example of a consonant plus vowel alternating with another consonant (without vowel) is:

ùgíe or ìyÁ-, "twenty"

(Historically, the best explanation of this phenomenon probably is that it represents essentially the same alternation in manner that we see in gìdìgìdì or ghìdìghìdì, "plump". Since, however, the phonotactic rules of Bini prohibit occurrence of the prevocalic sequence ghi, this sequence probably became y through the intermediate phonemic stage gyh.)

Sequence-alternations of the type VV/VV, CV/CV, and CV/CC also occur, though they are of course far less common than unit-phoneme alternations. Examples are:

VV/VV: siee or suoo, "to collapse" (cf. gi / gu, above)

CV/CV: rìẹrìẹrìẹ or rlùẹrlùẹrlùẹ, "burning with a faint yellow flame" (cf. gi / gu again. The change in linguals is merely phonotactic.)

CV/CC: kpàlàkpálá (a rough-scaled fish) vis-a-vis khúarlákhúarlá,
"rough"

(Historically, again, the above is quite possibly the reflex of a one-step unit alternation in manner, comparable to that seen in òkû́ò or òkhúò, "war". The sequence kwálá- or the like may then have become kpálá-. The probabilit of such a development is increased by the fact that kp never occurs before pre-vocalic u.)

In a few cases, our findings in the area of alternation agree only poorly with our findings in other phonic areas. This is most strikingly so in the case of the voiceless spirant h -- where, however, we may perhaps console ourselves with the reflection that each separate line of phonological approach yields a distinct and different characterization for this particular consonant! Phonetically, of course, it is a glottal. In historical terms (as well as in those of phonemic pairing), it is a bi-labial, being the voiceless counterpart of bh, and having presumably developed from a phonetically bi-labial spirant . (In slurred speech, in fact, it still exhibits this allophone before pre-vocalic u.) In "taxiphonemic" terms, however -- that is, in terms of all the other segmental phonemes with which it patterns, both horizontally and vertically -- it is merely a generalized dorsal, having equally close columnar links with bh, with kp, and with kh and f. Yet in variational terms it is a dental, alternating most often with n, rl, rh, f, t, and k!

In a few cases, examples of apparent consonant-alternation may well be spurious. Thus, in the verb mìọnghọ́n or mìọnrlọ́n, "to be slippery", we may be dealing only with suffix alternation between the two extensionals -ghe and -rle. In the case of the divine name àkhúàbhàn or àkhûarlàn, we may have a back-formation or "over-correction", based on the fact that rl is the most frequently elided of all consonants: after the bh was elided[1], some speakers, hearing a gap (or minor disjuncture) between the last two vowels, may gratuitously have supplied what they assumed to be a missing rl. Much the same may be hazarded of the skewed alternation seen in ẹ̀gíẹgi̍ẹ or ẹ̀zẹ́zẹ̍, "speed". In hurried speech the first of these forms becomes [ɛ̀džɛ́džɛ̍] and in slurred speech ẹ̀jẹ́jẹ̍. Bini speakers who lacked this affricate on both the phonetic and the phonemic level might well have interpreted the pronunciation as a "Yorubaism" and unconsciously have "Binicized" it into ẹ̀zẹ́zẹ. (Cf. Bini òzó, a boy's name, from Yoruba òjó, and the like.)

In other cases, on the contrary, we are surprised not to find particular pairs of consonants alternating at all when analogous pairs seem to be alternating rather freely. Such unexpected non-variants are:

(1) in voice - k and g
(1) in manner - d and z
(1) in position - k and kp
(2) in voice and manner - h and p
(2) in voice and position - h and bh
(2) in manner and position - v and w

A special problem of interpretation is offered by írhìísò, "locust", reported by Melzian to alternate with ísi̍sò among "old people" . . . in quick speech".[2] This nominal gives every evidence of being a reduplicative compound. If we assume the decelerated form to be older, we are led to re-construct the noun simplex as *ìrhò; while if we assume the form used by the elderly to be older, we are led to the obverse reconstruction *ìsò. In either case, we are confronted with what seems to be an isolated instance of consonant-dissimilation, in which rh ... rh or s ... s yields rh ... s. Our experience with other examples of noun reduplication would lead us rather to expect variation by pre-elision[3], yielding *ì'i̍rhò and *ì'i̍so, respectively. Two alternative explanations, however, suggest themselves: (1) that ìrhi̍sò is a blend of *ìrhirhò with *ìsi̍sò or (2) that it is borrowed from some related vernacular with different rules for handling discontinuous sequences of identical consonants.

---

[1] For the rules of elision, see below.

[2] Dictionary, p. 97.

It is possible to consider all cases of occasional consonant elision as examples of sporadic alternation, on the grounds that all such consonants are alternating with another non-vowel -- viz., the speech-gap, or minor disjuncture. All continuant consonants from semi-vowels to voiceless spirants may be so elided, though only four of them are thus elided with great frequency and in initial as well as intervocalic position. Examples of these four are, in order of their frequency of elision:

(1) rl - rlā or ā,[4] "or"
(2) gh - ghá or á, "shall"
(3) h - hé or é, "to precede"[5]
(4) bh - bhẹẹn or ẹẹn, "to have"[6]

---

[3] For a fuller consideration of the pre-elision of consonants, see below

[4] The fuller form of this particle is Àrlà, with primary tones.

[5] A pre-verb, usually occurring after the negative verb mán, together with which it means "not yet".

[6] bh is elided frequently before nasal vowels, infrequently before oral vowels.

On the other hand, there are also two pairs of spirants (of partially or wholly dental position) which are rarely or never elided. Thus, z seems to alternate with the speech-gap only in the echoic noun ónìkẹ̀'ẹ́kẹ̀zẹ́, "fringeless royal head-gear"; while s so alternates only in èséèsò or è'ésō, "either one", and similar reduplicative nominals.

Moreover, it is doubtful whether v is the elided spirant in the phrase nẹ́'ẹ́dẹ̀'à, "three days ago". Although this phrase alternates with nẹ́vẹ́dẹ̀'à, both of them further alternate with nẹ́ghẹ́dẹ̀'à, all with the same meaning; and it seems likely that gh rather than v is the elided spirant here, especially since the free form of the noun in question is ẹ̀ghẹ̀ only, never *ẹ̀vẹ̀. As if to bear this out, f, the voiceless counterpart of v, is (at least to the best of this author's knowledge) never elided at all.

As we have already indicated earlier[7], all stops except kp may be elided in discontinuous identical sequences, such as that found in ẹ́gógó or ẹ́ẹ́gó, "bell". Even the voiced labio-velar stop gb can be elided, as in ìgbììgbè or ì'ìgbē, "by tens", a fact which apparently makes its voiceless counterpart the only wholly inelisible segmental in Bini: the compound àkpáàkpá, "spider", is never pronounced *à'ákpà, even in accelerated speech.

Of all Bini polyphthongs, rising diphthongs are by far the stablest. Even in slurred speech, they normally retain their diphonemicity by converting their initial high vowels into semi-vowels. Thus, from kúe, "to agree", and gìo, "to send", come the obligatory accelerated alternants kwé and gyó. Nonetheless, even these relatively resistant vowels can be elided and fairly often are. Thus, we encounter such alternants as:

---

[7] Above, under Syllables.

zlẹnzlẹn or zẹnzẹn, "to cram"
and
vuọn or vọn, "to get full"

Of all classes of consonants, those that alternate most freely are linguals and those nasals which are most nearly homorganic with them -- in effect, n, l, rl, r, and rh. In fact, so free are their mutual substitutions that one is tempted to employ Gleason's semi-jocular terminology[8] and state that Bini linguals exemplify "cheap variation" -- that is, variation which is almost, but not quite, free. Linguals are the only Bini consonants for which it is easy to find alternant triads, such as:

nẹ̀, lẹ̀, or rlẹ̀n, "he"
logho, rlogho, or rogho, "to be mushy"
rlẹnrlẹn, rẹnrẹn,[9] or rhẹnrhẹn,"to tickle"

Although comparable triads may be found among other segmentals, they are relatively rare. The only three that the author has thusfar discovered are:

si-, se-, or sẹ-, "good"[10]
èhé, èkhé, or èké, "place"
ètìgɔ́n'ẹ̀n, èsìgɔ́n'ẹ̀n, or èrhìgɔ́n'ẹ̀n, "heron"

In some cases, sporadic phonemic variation can be predicted on the basis of allophonic closeness or partial overlap. Such predictability holds, for example, for the pair h/rh, which show the allophonic approximation [ç/ǯ] before pre-vocalic i; and for the pair h/kh, which, at least in slurred speech, may merge via the shared allophone [ɸ] before pre-vocalic u.

---

[8] Personal communication.

[9] This form, unlike its two alternants, exhibits minimal stability.

[10] These forms are roots, not words. See below, chapter on Morphology.

In a few cases, such as that of the alternation wu or ghu, "to die", we may actually be dealing with the results of analogical leveling. On historical grounds, it seems probable that the older form is ghu, but that before vowels this ghu became first ghw-, then gwh-, and finally w- (all of which may occasionally be heard among older speakers today, but all of which are rare). This w-, however, seems to have been "crossed" with ghu to produce the blend or hybrid form wu, which is now by far the commonest of the alternants of this verb. By analogy, we may infer that the verb yi, "to put", had a parallel evolution from *ghi, although here we lack the range of surviving phonic evidence that we possess for wu. All we can indisputabl assert is that there is no free verb consisting of or ending in the sequence *ghi.[11] This fact leads us, in view of the large number of other verbs ending in spirant plus i (and of the parallel absence of verbs ending in *kpi or *gbi[12]) to suspect some sort of phonotactically-caused phonemic rearrangement among free verbs.

One particular form of sporadic variation that receives especially elaborate development in Bini is sound-inversion. This inversion may affect either units or sequences and may occur on either the phonetic or the phonemic level.

In fact, two of the alternation-types that we have already treated could be placed under the rubric of inversion -- front-back vowel-alternatio and oral-nasal quality-inversion. Of these, the former could be called position-inversion and the latter quality-inversion. And sometimes the phonic variations on these basically simple themes become rather complex.

---

[11] The pre-verb ghi, "should", never occurs before vowels.

[12] For the phonic parallelism here, see above, under Phonotactics.

Tongue-advancement or -retraction may be extended to semi-vowels as well as to vowels, and the semi-vowels in turn may be contrastively linked with vowels or with vowel-sequences of opposite tongue-position.

Such a case of "inverted inversion" is the verb wiee or yuoo, "to drop out".

A case of double inversion -- that is, inversion of both vowel-position and vowel-quality -- is the verb suoo or siẹen, "to collapse".

Sometimes, too, a quality-inversion can be itself inverted in such a way that a nasal-oral syllable-sequence is converted into an oral-nasal sequence. In at least one dialect, this is what happens in accelerated speech to such a morpheme-sequence as din-, "deep", plus -bhE (a verbal extensional), which jointly come to comprise the verb dibhin,"to plunge".

Since in both historical and metaphonemic terms there are only two tones in Bini -- the primary tones, top and low -- any basic tone-shift on single vowels automatically assumes the nature of an inversion. This is what we see in such simple tonal pairs as dé and dè, "what?". (Actually, this alternation is morphophonemically conditioned by the tone of the initia vowel of whatever noun follows it. Such a recessive tone will hereafter be referred to as "chameleon tone" and graphically represented by an x -- that is, a top-tone mark crossing a low-tone mark -- over its vowel.) A longer but variationally purer example of sporadic tone-alternation is the noun ádá or ádà, "sword of state".

A tonal pattern of "inverted inversion" may be seen in the noun ẹ̀bé or ẹ́bè, "harm", where the sequence LT becomes TL.

In echoics, a "tone fixative"[13] may be inverted, as in the noun údúdú or ùdùdù, "lump", where the sequence TTT becomes LLL.

---

[13] For a definition of the term "fixative", see below, under Morphology.

Sometimes tonal inversions are combined with positional inversion, as in the noun ẹ̀bé or ọ́bè, "peril".

Very rarely a word will exhibit two sets of tonally inverse forms, which, in concert, make up a sort of "tonal cross" or "inversional tetrad". Such a tonal tetrad is constituted by the four lexical (not grammatical) allologs of the noun "day": ẹ̀dẹ́, -ẹ́dẹ́-, ẹ́dẹ̀-, and -ẹ̀dẹ̀.

Equally rare is the type of tonally inverted nominal compound exemplified by the word ọ̀gbọ́ọ̣ngbọ́n or ọ́gbọ̀ọ̣ngbọ̀n, "freshness".

Even on the sub-phonemic level, however, tonal inversions take place. Thus, for example, the post-nominal form of disyllabic nouns of the LT pattern is, in accelerated speech, a tonetic mirror-image of the isolation form. More specifically, while the tonemic contrast between the two forms -- say, èbé and -ébꜜè, "leaf" -- is not quite inverse, the relation between tone-levels -- here most commonly 3-2 and 2-3 -- is precisely so. This can be made dramatically apparent by tape-recording the reduplicative compound of the noun in question (èbébꜜè, "foliage") and then playing it backward -- preferably on a tape-loop, so that it can be heard repeatedly without the interpolation of extraneous material. The utterance èbébꜜe comes out as an almost perfect phonetic palindrome, [$\overset{3}{e}b\overset{2}{e}b\overset{3}{e}$], whichever way one plays it.

As a matter of fact, the search for palindromes in Bini high-lights some useful facts, often too easily forgotten by the learner, about the contrast between graphic, phonemic, and allophonic levels of linguistic representation and analysis: Some words, such as [$\overset{3}{o}d\overset{2}{e}d\overset{3}{o}$], "Benin Road" (from ọ̀dẹ́, "way", and èdó, "Benin"), are palindromes only on the phonetic level. Others, such as ùrhù, "neck", are palindromes only on the phonemic level.

Others, again, like òwòwò, "heat", are palindromes on both the phonemic and the graphemic level. Still others, finally, like ágá, ágágá, and ágáágá, all meaning "chairs", are palindromes on all three levels at once. (Anyone in doubt about the tonetic shift in ùrhù or òwòwò need only play them in reverse to be convinced immediately of the over-all downward drift of low-tone sequences.)

A kind of tonal inversion, or at least a shift in the syllabic location of tone, seems to have taken place in compounds like èbíebi̍, "extreme darkness", from a doubling of èbí, "darkness". Here the lower tone on the third vowel in the compound -- that is, the second e -- has been shifted to the fourth vowel -- that is, the second i. (Our graphemic practice here is analogous to our practice in writing the rising diphthong in verbs. In both cases the tone marking placed over the close vowel holds automatically for the open vowel which follows, and so the open vowel is left unmarked.)

A similar syllabic shift in tone location is heard in the dialect of younger speakers in such verb-plus-pronoun phrases as bàánrlẹ̀n, "grab it!" (from ban, "to snatch", + ẹ́rlè, "he"). Most young adults pronounce this rather as bànrlẹ́ẹ̀n, with a shift of high tone from the first to the second syllable of the object pronoun.[14] (It will be noted that the final vowel of the phrase is concomitantly lengthened. It is possible, of course, to interpret this as an inversion in the order of setmentals as well, and to say that in this dialect, post-verbal ẹ́rlè becomes *rlẹ́ẹ̀.)[15] The tonal inversion heard in this and similar utterances will henceforth be referred to as "tone transfer".

---

[14] For an explanation of the extension of the verbal nasality, see the earlier portions of this section, as well as the subsequent chapter on Morphology.

[15] Mr. Solomon Akpata, alone among our informants, pronounces this phrase bàn'éè and other such phrases analogously.

The same group of speakers also have a tendency to shift the disyllabic TLT sequences of decelerated speech to an intermediate-speech tone-sequence different from that of their elders. Thus, where family-heads say ọ́ni̍n for ọ́nìîn, "that one", young adults often say ọ́ni̍i̍n. (In tonetic terms, older speakers convert the decelerated sequence 1-32 into the intermediate sequence 1-2, while younger speakers convert it into 1-23.) It may be that the best explanation for this phenomenon is simple phonetic inversion of the sequence 32 into the sequence 23. In any case, the only alternative explanation, on the phonemic or metaphonemic level of interpretation, is to say that the morphophonemically original form of this nominal was *ọ́nìî'ìîn and that young speakers have here preserved more of the earlier form than have older speakers -- a rather unlikely state of affairs!

Before we leave the question of the possible transposition of segmentals raised by the alternation of bàánrlẹ̀n with bànrlẹ́ẹ̀n, it may be worth considering another potential example of such metathesis: The postpositive form of the second personal singular pronoun is rlùẹ́. Its prepositive form, however, is ùwẹ̀. Furthermore, its presumable Yoruba cognate is -ìrẹ̍.
Either way, the consonant would seem originally to have been intervocalic (*ùrlẹ́ or *ùwẹ́), as it is in all the other postpositive pronouns of Bini (Àbhẹ́n, ẹ̀rlé, etc.). If *ùwẹ́ is the older form, it may have become *ùrlẹ́- via *ù'ẹ́- by the process of pseudo-restoration seen in ùkòrlòbòzò for ùkòghòbòzò, "Latham's Francolin" (a bush-fowl), and treated in the discussion of consonant-elision above.

Alternations in voice, which we have already discussed under the heading of one-step consonant-variation, can also be considered examples of inversion, since only two alternate possibilities exist -- voice and voicelessness. Elaborations on the theme of voice-alternation, however, such as were not discussed above, can be found among exclamatives, where we see discontinuous sequences of two voiced consonants alternating with two voiceless consonants, as in ghárá or khárhá, "hail!"

As we have already suggested above[16], intrusive semantic factors can sometimes alter the "normal" phonic or morphic pattern of vowel-confluence. In some cases, this alternation takes the form of what might be called "inverse elision". Thus, the usual patterns of vowel-dominance seen in the noun íyìyé, "grandmother", or the verb-phrase díguẹ̀, "to kneel", are inverted to produce the semantic variants ìyéyé, "old woman", and déguẹ̀, "to fall to one's knees (while wrestling)", which would otherwise be homophonous.[17]

We may conclude this section by citing a royal name which illustrates a single pair of alternants three distinct types of inversion: in vowel-height, in vowel-pitch, and in vowel-quality. The name is ẹ́wẹ̀dò or èwẹ́dọ̀n (which may or may not contain allologs of ẹ̀dó, "Benin").

Section 11: Phonic Domains

Bini utterances belong to a number of different sound-types, which we shall henceforth refer to as "phonic domains". Bini has three such domains, each of which, in turn, may be divided into two sub-domains, as in Table 11:

---

[16] In the section on Phonotactics.

[17] The first pair are a reduplication of ìyé, "mother"; the second come from de, "fall", plus ìguẹ̀, "knee". Although ìyéyé may possibly have anothe structural origin (cf. Ijebu Yoruba yé and Oyo Yoruba yèyé, "mother"), it seems impossible to account for the two phrases in terms of any alternative construction.

Table 11:

domain	sub-domain	representative utterances
1. euphonic	1. haplophonic	most affixes
	2. coenophonic	most words
2. dystactic	3. allophonically dystactic	some imitative adverbs
	4. phonemically dystactic	most recent English loan-words
3. dysphonic	5. xenophonic	some recent Yoruba loan-words
	6. paraphonic	many exclamatives

Haplophonic (literally, "simple sounding") utterances are monosyllabic and contain only single oral vowels with primary tones: they exclude double or triple vowels, polyphthongs, nasal vowels, and all derived tones. Nearly all affixes are of this type. So are most verbs and many exclamatives. Examples are:

-rìè, "did"
go, "to shout"
tá, "Watch out!"

Most euphonic (literally, "good sounding") utterances, however, are not haplophonic, but coenophonic (literally, "common sounding"). Most word-classes are of this type. So are most assimilated (i.e., relatively old) loan-words from foreign languages, quite a few exclamatives, and several affixes. Examples are:

màn, "we"
ẹkúẹ, "Yoruba"
guaá, "to know how"
vúu'un, "deep"
èné, "the"
ée, "Thanks for your greeting"

èkùyẹ́, "spoon"< Portuguese colher
ágèlè, "gun shot"< Danish hagel
èsọ́sī, "church"< English church

ùsánán, "matches"< Yoruba Ìshánán
ọ́gà, "carrying-net"< Jekri ọ́gà
ọ́kà, "maize"< Ibo ọ́kà

-mAn- (a noun interfix)
-kan (a verb extensional)
-bhiẹ (a verb extensional)
-mian (a verb extensional)
-Àbhẹ̀n (a nominalizer)

Allophonically dystactic utterances are those that have allophones (which are quite normal in certain positions, dialects, or tempos) in situations in which they are not expected. The only word-class which exhibits allophonic dystaxis is adverbs; and, among those, only such as can be semantically classified as imitative. Examples are:

$[\,\acute{\tilde{}}\ \overset{1}{\tilde{}}\ \overset{19}{\tilde{\text{ɪ}}}\,]$ (the cry of the Ogin-monkey)

$[\text{p}^{\grave{\text{u}}}\ \text{p}^{\grave{\text{u}}}\ \text{p}^{\grave{\text{u}}}\,]$, "feebly fluttering"

$[\text{b}\ \overset{1}{\text{æ}}\ \overset{3}{\text{æ}}\ \overset{5}{\text{æ}}\,]$, "baa, baa"

The monkey-cry is abnormal both in the extremely wide interval between its vowel-pitches and in the extreme openness of its vowel (presumably i̱). The second adverb, which describes the flight attempts of a dying bird, is unusual in the extreme shortness of its vowel, which may also be pronounced with some degree of openness. The sheep-bleat contains a low allophone of ẹ̱ which is usually heard only in the speech of children.

Phonemically dystactic utterances exhibit normal allophones of ordinary phonemes; but these phonemes occur in sequences which are normally prohibited. Such sequences occur in a good number of exclamatives, adverbs, and semi-assimilated (usually nineteenth century) loan-words. Examples are:

ẹ́n, "yes"
îii, "Oh, what a lie!"
ḿ, "eh?"
hḿm̀, "What a stench!"
śss, "hush!"

gbọ̀un, "bong! bong!"
gbìm, "bang!"
gbr̀r (the sound of a bogey-man)
pr̀rr, "flap! flap!"
grì, "all of a sudden"

óvìnn, "oven" (from English)
èbi̍ugòl, "bugle" (from English)
èváàv, "valve" (from English)
èfrẹ́nsī, "French" (from English)
álbáàt, "Albert" (from English)

Dysphonic (literally, "ill sounding") utterances may be either phonotactically normal or abnormal: their sequence-behavior is of less importance than the character of their phonemes, which are always abnormal. This abnormality, however, may be of either of two types -- xenophonic ("foreign sounding") or paraphonic ("odd sounding").

Xenophones are phonemes which occur normally in other languages with which Bini has contact, but which do not normally occur in Bini. They occur in recent (and relatively unassimilated) loanwords, in adverbs, and in a few exclamatives. Examples are:

i̍gbànjá, "Hausa kola"<Yoruba gbànjá
ìjáke̍, "dog-fish"<Jekri jáke̍
èji̍ìnn, "gin"<English gin

jọ̀jọ̀jọ̀ (describes the ring of a prince's anklets)
di̍ẹyẹ́ng'di̍ẹyẹ́ng (describes the tinkle of a servant's anklets)

śh, "shoo!"

Paraphones, finally, are sounds that do not occur as parts of the normal linguistic system either of Bini or of any of the languages with which Bini has frequent contact. Such segmental sounds -- chiefly stops,

either glottal or suctive ("clicks") -- occur exclusively in exclamatives. Examples are:

ẹ́n ẹ̀n, "Don't!"
p*, "Here, boy!" (a dog-call)
t*, (an expression of contempt)
c* (an expression of annoyance)

In Bini, as in English, it is always a question to what extent one should try to assimilate paraphones graphically to the rest of the language. The English homophone of c*, for example, can be written either dystactically as tch or eutactically as tut.

Although a eutactic writing of the Bini paraphones would probably distort them too much for effectiveness, a convenient orthographic compromise might be to represent them as dystactic sequences of normal phonemes. In that case, the four preceding exclamatives could be written:

ẹ́ntkẹ̀n
pf
ts
csh

In addition to segmental paraphones, Bini also exhibits simultaneous paraphones of pitch, which we may call paratones. Sometimes these paratones seem merely to have a reinforcing or exaggerating effect on the tones already present in an utterance. They may raise upper tones, lower nether tones, or do both at once. Examples are (where V̋ represents extra-high tone and V̏ extra-low tone):

ọ̀ghi̋mòse̋, "My, but he's nice!"
mẹ̏nbhẹ̏n, "What - me?!"
ìn'i̋n̏'ìn (the cry of the Ogin monkey)[1]

---

[1] Which is phonetically represented above.

Occasionally paratone is dystactic -- that is, it violates the rules of tone-sequence. An example of this dystaxis is the sequence top + extra-high, as in:

ọ̀sìghéèrée̋, "Did he really come?!"

In a few cases, especially when a change in tone-direction is involved, it may lead to ambiguities if paratones are written as ordinary tones. Thus ọ̀dé'è could mean either "It has fallen", "Did it fall?", or "It's falling down, down, down". This sort of ambiguity can be lessened either by writing the third of these utterances dystactically as

ọ̀dééꜜè

or by introducing some new tonal diacritic, as below:

ọ̀dé ↘

In the case of bivocalic verbs, this latter procedure seems preferable. E.g.:

òdèé↘, "It's coming closer...closer...closer!"

In the aforegoing cases, vowel-prolongation is at least as important an aspect of paralinguistic modification as is tone-change. In some cases, the vowel-lengthening may be the more important factor. E.g.:

kóyꜜọ̀ọ̀gáa, "Good day, sir" (conveying extreme sarcasm)

The normal (i.e., respectful but casual) form here would be

kóyꜜọgꜜà.

If it seems necessary, phonic domains can themselves be grouped into still larger categories for contrastive purposes. Thus, the euphonic and dystactic domains can be lumped as non-dysphonic (as against dysphonic), while dystactic and dysphonic domains can be lumped as non-euphonic (as against euphonic).

A contrast of the haplophonic with the coenophonic sub-categories of the euphonic domain leads almost inevitably to the historical question, Which is "original" and which derivative? A purely phonological consideration might well lead us to the conclusion that coenophony is derived from haplophony by a pre-historic incorporation of such "un-Bini" sound-traits as diphthongs and nasal vowels into Bini -- presumably by way of Medieval Yoruba and Renaissance Portuguese.

Morphological considerations, however, make it seem more probable that the extreme phonic simplicity of Bini affixes is due rather to reduction of vocalic sequences and co-occurrents in commonly used dependent morphemes. Support for this view comes both from a consideration of the history of affixes in other languages, such as English, and from a review of the temporal phonology of Bini itself, where we note that some affixes, such as the perfective verb suffix -rìe, disappear completely at maximal speech-tempo.

In some respects, loan-words as a group may be said to comprise a phoni realm in Bini which cross-cuts the phonic domains we have been describing. A salient feature of this realm is disproportionately frequent occurrence, in borrowed words, of the high vowels, i and u. Sometimes they constitute the entire vocalism, as in such echoic nouns as:

ìsísī, "sixpence" (from English)
ìbírlìkì, "brick" (from English)

More often, they supply the vowel-color of the syllabic which, in Bini, develops adjacent to the syllable which, in English, carried the primary stress. E.g.:

àkúkū, "cook"
èsùkúrlū, "school"

This usually occurs even when the formerly stressed vowel is not itself *i* or *u*. E.g.:

òsìkó, "a score (in logging)"
ìgólū, "gold"

The probable reason for this predominance of high vowels is that they are generally added or inserted to prevent dystactic consonant occurrences. Since they are the most consonant-like of Bini vowels, they are least likely to distort foreign words beyond the point of recognizability.

Internal repetition even of non-high vowels, however, is disproportionately common in nouns borrowed from English. E.g.:

èháyà, "hire"
îkọ́bọ̀, "copper penny"
ìsélē, "shilling"
îmótò, "motor car"
èkîkī, "kick (in football)"

A few nouns of Romance origin (probably Portuguese, but possible Spanish or French)exhibit complete vocalic echoism. E.g.:

àtàkà, "roll of tobacco"
èsétē, "dish, plate"

The most plausible explanation for the high incidence of echoism in loanwords is a feeling on the part of native speakers that xeno-linguistic utterances share with para-linguistic utterances a common "alienness" which makes them subject to the phonic devices, such as echoism, which characterize adverbs, exclamatives, and other phonically peripheral speech categories.

Another characteristic of borrowed words in Bini is extreme allology -- that is, the tendency for one word to exhibit several different forms. E.g.

èzîìn, èzînī, zîìnn, jîìnn, "gin"
èfádā, èfọ́ndà, èpá'ùdà, "gun-powder"
ètà'è, ètâà, "neck-tie"

In some cases, variant forms are fairly easily explained in terms of dialect or period. The form jîìnn, for example, is the one most commonly used by educated speakers, who take pride in their knowledge of foreign languages. The form èfádā, on the other hand, is probably a pre-nineteenth century loan, dating from the time when p was not yet a phoneme in Bini. Other forms, however, are not so easy to account for: èfọ́ndà, for example, shows a change from oral to nasal vowel quality which, in purely Bini terms, can only be called aberrant. It is possible, though, that this form is an indirect loan which reached Bini through some other language which had already nasalized the English diphthong. As regards the tonal discrepancy between ètà'è and ètáà, about the only appropriate "explanation" would seem to be the descriptive one of sporadic variation, as set forth in the preceding section.

From the standpoint of historical linguistics, the morphic unpredictability of loan-words is well exemplified by the phonic reflexes of foreign p, which, in Bini, may appear as f, b, kp, or k, as in the following nouns from English:

èfádā, "powder" (as above)
èkábîtà, "carpenter"
ìkpọ́n, "pound sterling"
èhọ́sīkìtò, "hospital"

Sometimes, phonic factors alone seem inadequate to explain form-changes in borrowed words. We must then resort to morphic explanations, as in the case of

èmàkàlîsọ̀n, "bicycle repairman"

which must almost certainly be reconstructed in English as *"mechanician" rathe than as mechanic. Here we should probably assume either affixative extensio on the model of English obstetric/obstetrician or an actual blend of the English words mechanic and technician.

A few Christian names, either titular or personal in type, have developed a stereotyped form in Bini. That form is a trisyllable with the tone-pattern LLT and with repetition, in the third syllable, of the vowel of the second syllable. This pattern may be called concatenation, since it links the first syllable to the second by identity of vowel-pitch and the second to the third by identity of vowel-color. Its emotive force is apparently affectionate rather than diminutive, since it includes terms of respect as well as nicknames. Examples are:

èfàdá, "Father, Pastor"
ènàtá, "Nat (Nathaniel)"
èwìlí, "Willy (William)"
èsòló, "Solly (Solomon)"

Although these nouns are most often vocative -- that is, used as terms of address -- they are not exclusively so.

The only Bini verb of clearly European origin is tàfìà, "to interfere", from English. It is morphophonemically marked off from other verbs by its irregular and invariable intonation, by its abnormal disyllabic sequence of monophthong plus diphthong, and by its lack of perfective/imperfective aspect-contrast. The initial syllable, which we might expect to be *ìn-, is dropped in accordance with the lexemic rule that no word may begin with a nasal vowel (which reduces it to *ì-) and, more particularly, in accordanc with the morphological rule that no verb-base may begin with a vowel (which further reduces it to zero).

Bini saba, "to be able", may come from Portuguese saber, "to know how", or from its derivative, Pidgin English savvy. It is at least equally possible, however, that the verb is a verb-noun phrase consisting of Bini sẹ, "to reach, attain, etc." plus Bini àbá "divination seeds". This interpretation, in fact, is rendered the more probable of the two by the irregular intonation of the perfective of saba, which, instead of the lexemic pattern *sàbáà, exhibits the phrasal pattern sábà (from sáàbá sA + àbá).

Before leaving the subject of loan-words, we might briefly abandon descriptive for prescriptive methods in considering the problem of the transcription (and consequent pronunciation) of Biblical names in Bini: Since the evangelical source-language in Bini is invariably English, it seems to this writer pointless to introduce Latin, Greek, or Hebrew (or, worse yet, pseudo-Latin, -Greek, or -Hebrew) pronunciations into Bini by way of "Classicistic" spellings of names from the two Testaments. The form Kristi, for example, which is used for Christ by both Anglican and Catholic Bible-translators, is neither good English nor good Bini. If maximal phonic approximation to the source-language is the goal of transcription, then kráèst would be a more appropriate Bini equivalent for Jesus' title; if, on the other hand, accommodation to the phonic and morphic norms of the target-language is the goal, then something like èkùrlásītì would be preferable. Either way, however, a dysphonic and dysmorphic word like Kristi tends only to block rather than to facilitate communication between missionaries and their actual or prospective converts.

Section 12: Metaphonemes

Metaphonemes may be negatively defined as groups of phonemes which are linked neither by co-occurrence, nor by sequence, nor by joint semanticity. They are thus distinct from vowels, from syllables, and from morphemes, respectively.

In positive terms, a metaphoneme will here be defined as a group of two or more phonemes, the difference between which is, under certain circumstances, neutralized. In other words, a metaphoneme consists of phonemes which are sometimes distinct from one another and sometimes not.

Types of metaphonemes can be distinguished according to the circumstances under which -- or, more precisely, the environments in which -- their constituent phonemes merge. Six major types will here be distinguished. These are: archiphonemes, chronophonemes, coenophonemes, morphophonemes, tropophonemes, and taxiphonemes.

An archiphoneme is a group of phonemes which merge in a certain phonotactic environment. Examples are:

N,[1] pronounced /n/, = n or l before nasal vowels
L, pronounced /l/, = l or r before prevocalic i
RL, pronounced /rl/ = rl or r before prevocalic u or before nasal vowel
K, pronounced /k/ = k or kp before prevocalic i or u
G, pronounced /g/ = g or gb before prevocalic i or u
HH, pronounced /kh/ = kh or h before prevocalic i or u

A chronophoneme is a group of phonemes which merge at certain speech-tempos. Examples are:

', pronounced / / = speech-break or speech-gap at accelerated tempo
Y, pronounced /y/ before vowels and /i/ before consonants = i, y, gyh ghy at maximal speech-tempo
W, pronounced /w/ before vowels and /u/ before consonants = u, w, gwh, or ghw at maximal speech-tempo

A special subtype of chronophoneme is the amphiphoneme, which is a sequence or group of sequences of phonemes that merge with a single phoneme at certain tempos. Examples are:

---

[1] Capital letters are here used only to designate metaphonemes, never to initiate proper names or new sentences.

C, pronounced /c/ = prevocalic *c*, *ti*, or *ki* at maximal tempo

J, pronounced /j/ = prevocalic *j*, *di*, or *gi* at maximal tempo

NY, pronounced [ɲ] and interpreted as /y/ = y or ni at maximal tempo before nasal vowels

NW, pronounced [ŋ̑] and interpreted as /w/ = *w* or *nu* at maximal tempo before nasal vowels

SH, pronounced /sh/ = prevocalic *si* or *rhi* at maximal tempo

ZH, pronounced /zh/ = prevocalic *zi* or *yi* at maximal tempo[2]

Tonal chronophonemes are sufficiently complex to warrant special treatment, particularly in view of the fact that we have not as yet dealt, other than phonotactically, with the interrelations between primary and derived tones:

All derived tones in Bini are members of amphitonemes which may be represented as follows:

LOW + TOP, pronounced as *low + top* in decelerated speech, but as *high* in intermediate and accelerated speech after a preceding *top*.

LOW + LOW + TOP, pronounced as *low + low + top* in decelerated speech, but as *flat + top* in intermediate speech, and as *mid* in accelerated speech after a preceding *top*.

LOW + LOW, pronounced as *low + low* in decelerated speech, but as *flat* in intermediate and accelerated speech after a preceding *top*.

LOW + LOW + LOW, pronounced as *low + low + low* in decelerated speech, but as *flat + low* in intermediate speech, and as *bottom* in accelerated speech after a preceding *top*.

The problem involved in temporal tone "reconstruction", however, is the same as that involved in "restoring" the diphonemic form of such maximal tempo segmentals as /sh/ or /j/: without hearing the derived phoneme in decelerated speech, one cannot be sure which of two or more sequences gave rise to it. Thus, the accelerated form ádè̍ can come either from a decelerat form áàdé, in which case it means "Who falls?"; or from a decelerated form ádèé, in which case it means "Approach!"

---

[2] At least dialectally.

To be sure, when the second tone is mid, one can be reasonably certain, not only that the decelerated sequence was one of top + low + low + top, but also that in the original form, the first two of these tones preceded and the second two followed the intervocalic consonant which usually separates the two tones remaining in the accelerated form. Thus, áde̋, "Who is approaching?" could, with considerable confidence, be reconstructed as *áàdeé even without the corroborating evidence of the actual decelerated form, which is as hypothesized above.

Unforunately, however, for reasons not yet wholly clear, not all of the primary tone forms which can be posited on a chronophonemic basis are actually encountered in decelerated speech; and in a few cases, they cannot be elicited even by determined probing. Thus, although the Bini word for "White Man" has two allologs, ébò and ébő, the second of which can be tonall reconstructed with a high degree of probability as *éèbòó, neither this nor any other primary-tone form is ever heard at any tempo. The result is that the historical linguist is left completely without any clue as to whether the first allolog should be reconstructed as *éèbó or as *ébòó. (Nor can the comprative linguist fully resolve the dilemma here. For, while Yoruba òyìnbó seems to favor *éèbó, as do Ishan ốìbó, and Ibo óyìbó, Kukuruku ốòbốò does not perfectly agree with this tonal restoration. About the most plausible reconstruction we can give for this word is the phonemically unstable form *éèb(ò)ó, itself probably derivable from a still older **ó(y)ìb(ò)ó.)

The situation for nether tones is precisely analogous to that for upper tones, though equivalent illustrations are harder to find for them because of the rarity of occurrence of bottom tone (which, as we have seen, is lacking altogether in some dialects).

A coenophoneme is a group of phonemes whose precise manner, voice, or position of articulation is either unclear in a particular context or group of contexts or unknown in any context. Examples are:

> A, which can be actualized as /i, e, ẹ, a, ọ, o, or u/ and may be pronounced (at least for pedagogical purposes) as [ə] or [ɨ].

It occurs in the intensive phrase-prefix Á-, as in ọ́dè, "It does fall"

Á + ọ̀-dé, "It falls".

> H, which can be actualized as any non-stop consonant, as a gap, or as a break; and which may be pronounced as [ʀ] or [ʔ].

It occurs in the pre-verb Hi, "don't" (which must be morphologically construed as having an initial non-vowel because all other verbs begin with non-vowels.)

A morphophoneme is a group of phonemes which alternate with one another in a predictable manner according to their morphemic environments. Examples are:

> I, which may be actualized either as /i/ or as /u/
> E, which may be actualized either as /e/ or as /o/
> Ẹ, which may be actualized either as /ẹ/ or as /ọ/

Thus, for example, the verbs gi, "to allow", gie, "to send", and giẹ, "to laugh" regularly change to gu, gio, and giọ, respectively, before the first person postpositive pronouns Àbhẹ́n, "me", and Àbhán, "us". E.g.:

gùbhẹ́n, "let me"
gìọbhán, "laugh at us"

A tropophoneme is a group of phonemes which are in frequent variation with one another. In the absence of any stipulation to the contrary, this shall be taken to mean sporadic variation, as defined above. An example is:

R, pronounced [ɹ], and actualized either as /r/ or as /rl/, as in ra'e or rlà'e, "to go"

A distinctive subtype of tropophoneme is the diaphoneme, a group of phonemes whose frequent mutual substitutability is predictable in terms of dialect. Examples of diaphonemes which are monophonemic in the speech of children but diphonemic in the speech of adults are:

LR, which may be pronounced [ɫ] and which can be phonemically actualize as /l/ or /rl/

RH, which may be pronounced [ɾɾ] and which can be phonemically actualized as /rh/ or /r/

MH, which is pronounced /m/ but may also be actualized as /bh/ before nasal vowels

GH, which is pronounced /g/ but may also be actualized as /gh/ in adult speech

KH, which may be pronounced as the uvular spirant [χ] and which can be actualized either as /kh/ on the one hand or as /k/ or /h/ on the other

BH, which is pronounced /b/ but may also be actualized as /bh/ before oral vowels

BG, which is pronounced /b/ but may also be actualized as /gb/

PK, which is pronounced /p/ but may also be actualized as /kp/

A taxiphoneme, finally, is a group of phonemes which collectively comprise an analytic class, each member of which differs from its neighbor only in one minimal or distinctive phonemic feature (which need not be an equivalent phonetic feature). Since this metaphonemic category, unlike those named above, applies to the diagrammatic rather than to the sequential arrangement of phonemes (i.e., forms an abstract rather than a concrete pattern), a single example of it should suffice for illustrative purposes:

PH, which may be pronounced [ɸ] and which is phonemically actualized, when voiced, as /bh/ and, when voiceless, as /h/

Section 13: Metaphonemics

Although a listing of metaphonemically determined allomorphs of common morphemes can be more conveniently left to our second chapter (on the construction of forms), it will not be out of place to append to this chapter on pronunciation a final section on metaphonemic processes and their general grammatical results.

When Bini forms are combined in larger constructions, substantial, not to say drastic, phonemic changes sometimes take place. These changes may be described as assimilative when phonemes of one form come to resemble those of another, and as absorptive when phonemes of one form are lost throug contact with phonemes of another. An example of such assimilation is the form -nọ taken by the iterative suffix -lo after verb bases ending in -an or -ọn; and an example of such absorption is the form -ko̍ taken by the word òkó, "age-mate", after the word kóyọ̍, "hello".

Since most forms in Bini are altered by contact with other forms, but since these alterations are seldom mutual or equal, hierarchies of phonic "dominance" among form-classes can generally be established. In such hierarchies, "strong" forms may be defined as those which alter little or not at all when incorporated in larger constructions, while "weak" forms may be correspondingly defined as those which alter markedly or even disappear when so incorporated.

In these terms, bases, as might be expected, usually dominate affixes, and words (i.e., independent forms) usually dominate morphemes (i.e., dependent forms).

Within the category of words, the order of dominance usually is:

1. nouns
2. verbs
3. pronouns
4. adverbs
5. exclamatives
6. particles[1]

That is, nouns usually lose phonemes only to other nouns, whereas particles usually lose phonemes to members of whatever other word-class they happen to be adjacent to.

Within word-classes, the sub-order of dominance usually is, among nouns:

1. unspecialized nouns
2. basives, locatives, and numerals
3. numeral-substitutes[1];

among verbs:

1. free verbs
2. co-verbs beginning with "strong" consonants
3. co-verbs beginning with "weak" consonants[1];

among pronouns:

1. prepositives
2. postpositives[1];

among adverbs:

1. precedents
2. succedents[1];

among exclamatives:

1. lá, "hail"
2. most others
3. ɗó, "greetings";

---

[1] For definitions and illustrations of these terms, see Chapter 2, below

3

among particles:

1. ábhé, "these"
2. èdé, "what?"
3. all others

Among affixes, too, there is a sub-order of dominance, as follows:

1. personal prefixes
2. "irregular" verb suffixes
    a. ending in nasal diphthongs
    b. ending in oral diphthongs
    c. ending in nasal monophthongs
3. most others
4. affixes containing cœnophonemes as syllabic nuclei

In some situations, it is useful to distinguish between phonic "dominance", as defined above, and phonic "persistence". Although the two are partially synonymous, in that both involve resistance to phonic change, "dominance" implies resistance in a situation of phonic competition with other forms, while "persistence" implies freedom from exposure to such competition.

In these terms, the hierarchy of word-classes is somewhat different, the order of phonic "persistence" among them being as follows:

1. exclamatives
2. adverbs
3. pronouns
4. nouns
5. verbs
6. particles

The reason for the re-ranking of numbers 2, 3, 4, and 5 here is that most exclamatives and adverbs benefit from their peripheral positions in sentences by avoiding close contact with members of other word-classes. The fact that both classes also exhibit a high proportion of phonesthemes (words containing non-phonemic phones) may also contribute to their resistence to phonic loss or assimilation.

Conversely, nouns and verbs suffer from their relatively central positions in sentences, which expose them to constant contact with each other and with members of all other word-classes.

Particles (and, of course, affixes, insofar as they may be included here) suffer both from centrality of position and from grammatical dependenc which inevitably expose them to phonic change, loss, or disappearance.

Although alteration of segmentals is perhaps more obvious (at least to the European observer) than alteration of tone, the latter is a no less important aspect of Bini metaphonemic process. There are, in fact, few tonal sequences which remain unchanged in Bini when words are grouped in larger constructions, a fact which should remind us that grammatical tone, while not as exclusively important as in English, plays nearly as important a part in Bini as does the more "characteristically African" feature of lexical tone. One unexplained aspect of Bini grammatical tone, however, is the fact that tone suppression (the conversion of an upper tone into a nether tone) is almost eight times as common as is its obverse, tone elevation (the conversion of a nether tone into an upper tone). In fact, the only constructions in which tone elevation is even moderately frequent are noun-plus-noun phrases.

Before leaving the subject of phonic dominance, we might do well to illustrate the extreme deformations to which some "weak" forms are subject in Bini. Among short forms, of course, this deformation may take the drastic form of complete disappearance, as with the extensional noun suffix -rlè, which is lost at maximal speech-tempo (the word ẹ̀gùarlè, "palace" for example, becoming ẹ̀gwà). But even in longer forms, the extent of phoneme loss may be quite dramatic. So it is in the case of the postpositive pronoun, rìẹ́, "thee", which, after verbs or nouns ending in -a or -ọ, becomes A, with total loss of three phonemes and virtual metamorphosis (that is, alteration beyond recognition) of the other two. Hardly less striking is the particle èdéghè, "whether", which, when sentence-initial (as in dúma̎, "I trust you're well"), loses five of its phonemes outright, alters one, and retains only two unchanged.